

SURVEY OF THE BENTHIC INVERTEBRATE FAUNA OF THE EASTERN BERING SEA



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Patsy A. McLaughlin

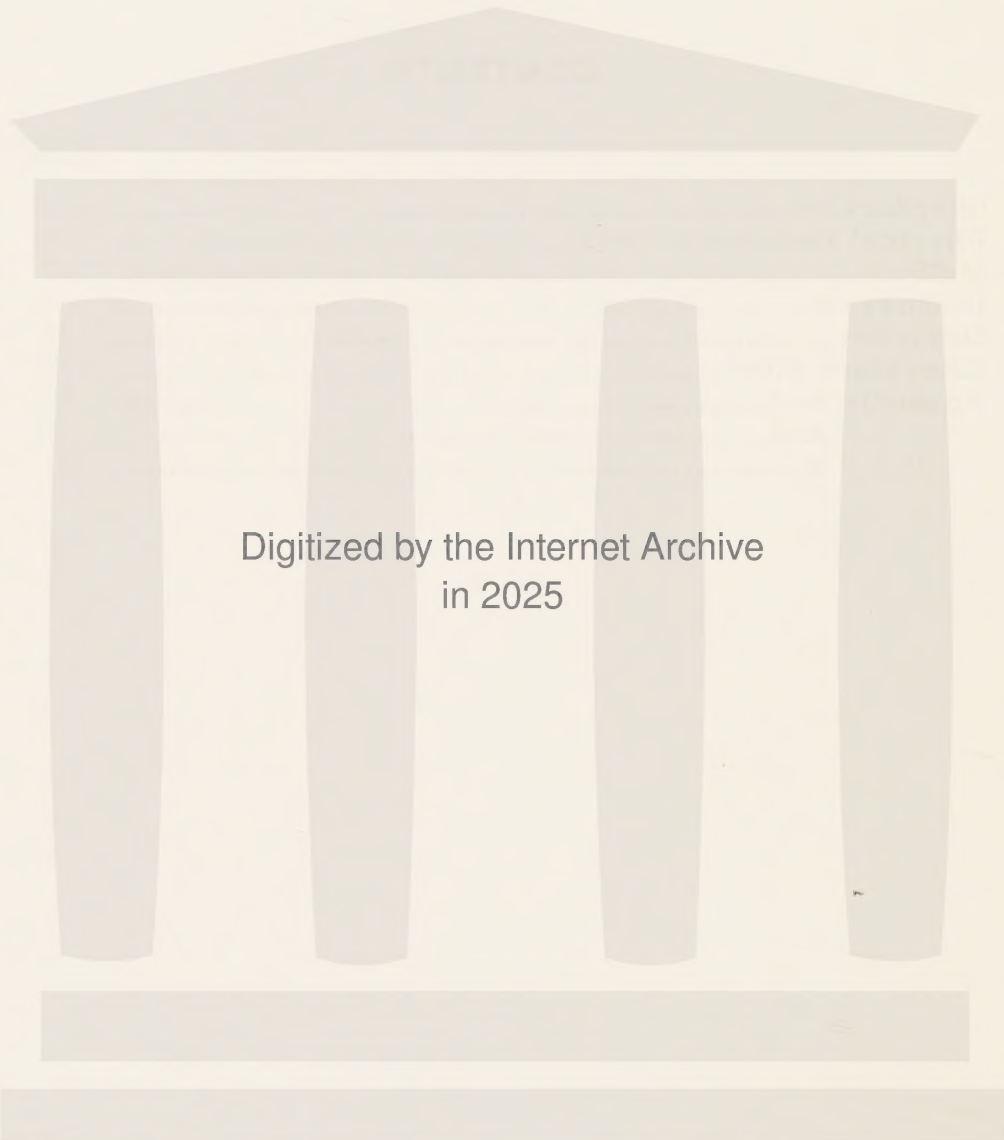


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ABSTRACT

The report presents a checklist of species of pelecypods, gastropods (exclusive of nudibranchs), barnacles, decapod crustaceans, tunicates, and the majority of echinoderms found on the Continental Shelf of the eastern Bering Sea during king crab studies of 1958 and 1959. In addition specific identifications are given for some of the bryozoans and hydroids, and a few of the annelids. Other organisms comprising otter trawl and dredge catches of the stations in the area are listed according to class or order.

INTRODUCTION

A phase of the research program conducted by the King Crab Investigation of the Bureau of Commercial Fisheries for the International North Pacific Fisheries Commission has included an ecological study of the eastern Bering Sea. During the summers of 1958 and 1959, samples of invertebrate bottom fauna were collected by king crab biologists aboard the chartered vessel M. V. *Tordenskjold*. The principal purpose of these collections was to aid in making specific identifications of food organisms of the king crab (*Paralithodes camtschatica*), a commercially important anomuran. In addition, relationship of king crabs to other fauna of the area may be established through these surveys.

Invertebrate fauna of the eastern Bering Sea has been studied little since the Harriman Alaska Expedition and *Albatross* expedition in the late 1890's and early 1900's. Limited information can be obtained from the report of the pre-World War II king crab investigations (Fishery Market News, 1942) and from the report of the *Pacific Explorer's* fishing and processing operations in 1948 (Wigutoff and

Carlson, 1950). Some information on species found in the area is included in reports of the U.S. Fish and Wildlife Service's Alaska exploratory fishing expedition in 1948 (Ellson, Knake, and Dassow, 1949) and the exploratory fishing expedition to the northern Bering Sea in 1949 (Ellson, Powell, and Hildebrand, 1950). Neuman (1960) has published a quantitative report, in Russian, on the molluscan communities of the eastern Bering Sea; however, reference is not made to his work since a translation is not available.

This report is restricted to a checklist of pelecypods, gastropods (exclusive of nudibranchs as identifications are not yet completed), barnacles, decapod crustaceans, tunicates, and the majority of echinoderms, collected in the eastern Bering Sea.

Several groups, such as annelids, forams, sponge, and the majority of coelenterates and bryozoans have not yet been identified due to the lack of available systematists or reference literature.

No attempt was made to conduct quantitative sampling of the invertebrate fauna since the needs of other king crab studies did not allow extensive sampling.

Note.--Presently employed as Assistant Zoologist, Department of Oceanography, University of Washington, Seattle, Washington.

The assistance of Dr. Fenner A. Chace, Jr., curator of the Division of Marine Invertebrates of the U. S. National Museum; Dr. L. B. Holthuis, Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands; and Drs. Dora P. Henry and Paul L. Illg, University of Washington, were particularly helpful in this study. Numerous systematists contributed considerably to the identification of specimens, in particular Dr. Dora P. Henry; Dr. L. B. Holthuis; Dr. Myra Keen, Stanford University; Mrs. Nettie MacGinitie, at that time director of the Kerckhoff Marine Laboratory; and Dr. Donald P. Abbott, Hopkins Marine Station, Stanford University.

PHYSICAL FEATURES OF AREA

The area of the eastern Bering Sea covered by the surveys (fig. 1) is characterized by a relatively flat sea bottom ranging in depth from 10 to 75 fathoms (fig. 2). Hebard (1959) describes a counterclockwise water circulation in the region, with a decrease in average current velocity with an increase in depth. Bottom sediments have been found to vary from fine mud in the western part to dark and coarse sand inshore (fig. 3). Temperature fluctuations during the sampling periods were considerable. Figures 4, 5, and 6 show the range of bottom temperatures observed during these surveys.

METHODS

The invertebrate fauna was collected by otter trawls towed on a straight-line course at approximately 3 miles per hour for 1-hour periods at stations spaced at 20-mile intervals throughout the area, as indicated in figure 1. The trawl used was a standard "400 mesh eastern" type, as described by Greenwood (1958), with a 94-foot-long foot rope. To assure the retention of smaller organisms, the trawl was modified by inserting a $1\frac{1}{2}$ -inch mesh lining to the cod end. Additional sampling was done at some stations with a box-type dredge (fig. 7). The galvanized screening of the dredge had four openings to the inch; in addition, it was lined with $1/8$ -inch mesh netting.

In 1958 the station pattern was covered first in April and May and again in June and July.¹ The catch at each station was examined, and the groups represented were recorded. A random sample of each catch was preserved immediately by freezing and subsequently transferred to 10-percent buffered formalin solution upon the vessel's return to port.

¹ Stations C-4, 5, D-4, 6, and K-12 were omitted during the early cruise, and stations A-4, E-4, F-5, 14, G-6, 15, H-7, 15, I-8, 14, and K-11 were omitted during the later cruise due to inclement weather.

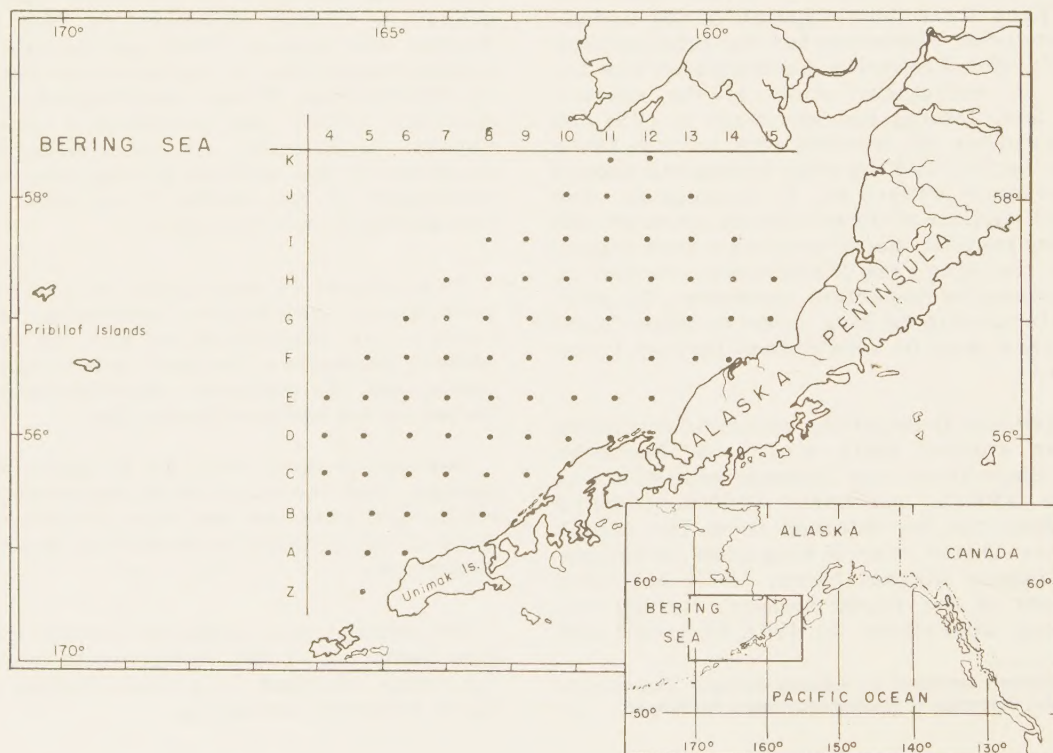


Figure 1.--Area of the eastern Bering Sea covered by the sampling program, showing the approximate locations of the stations. Dots indicate station locations.

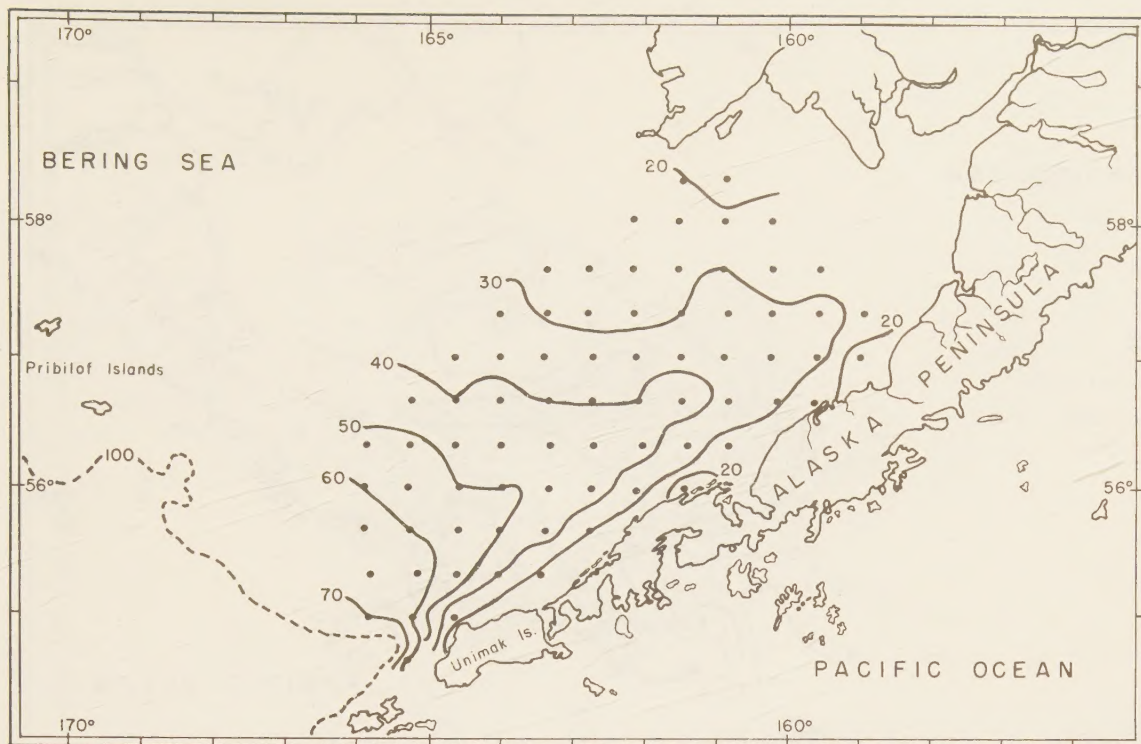


Figure 2.--Depth contours of the eastern Bering Sea area covered by the sampling program, Depths are given in fathoms.

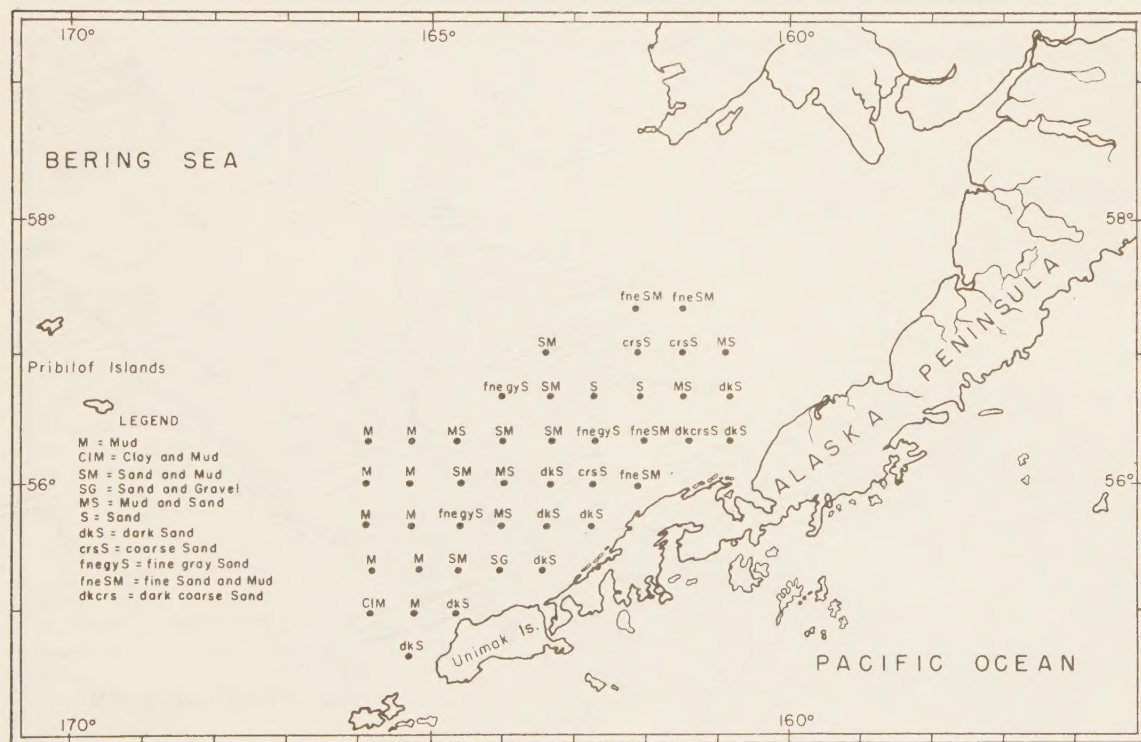


Figure 3.--Bottom sediment distribution, 1959. Sediment types are according to U. S. Coast and Geodetic Survey and U. S. Navy Hydrographic Office designations.

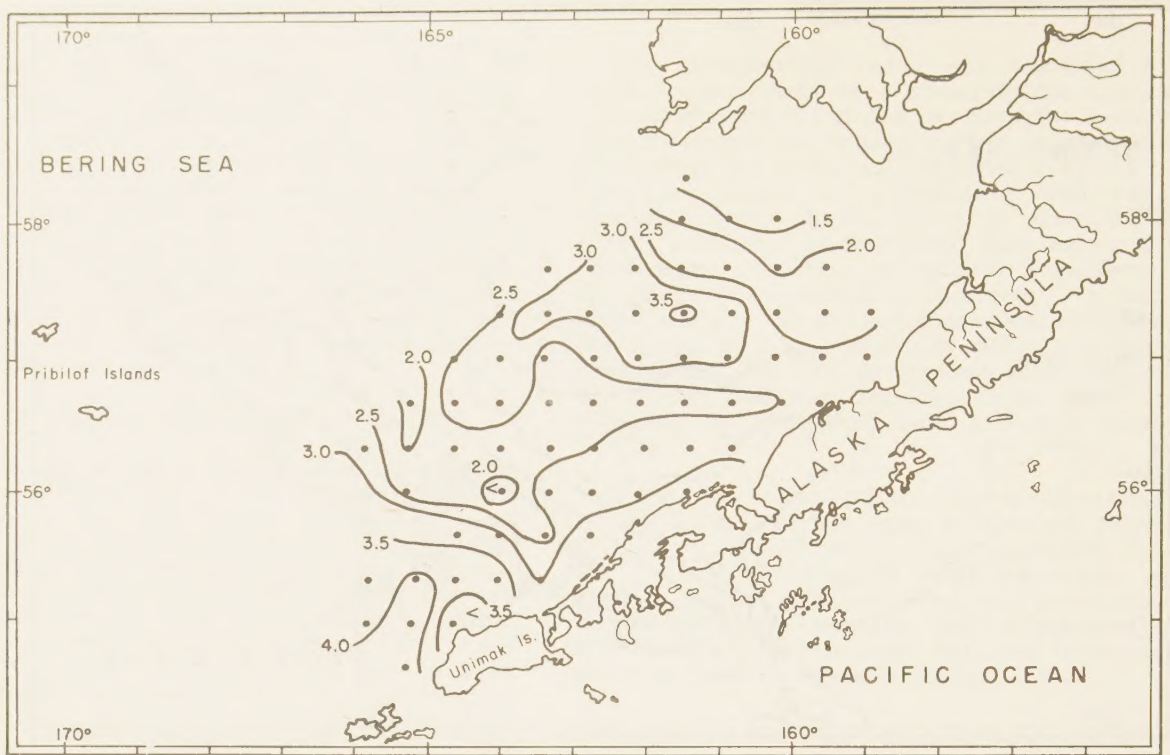


Figure 4.--Bottom temperature distribution, April and May 1958, Dots indicate station locations.

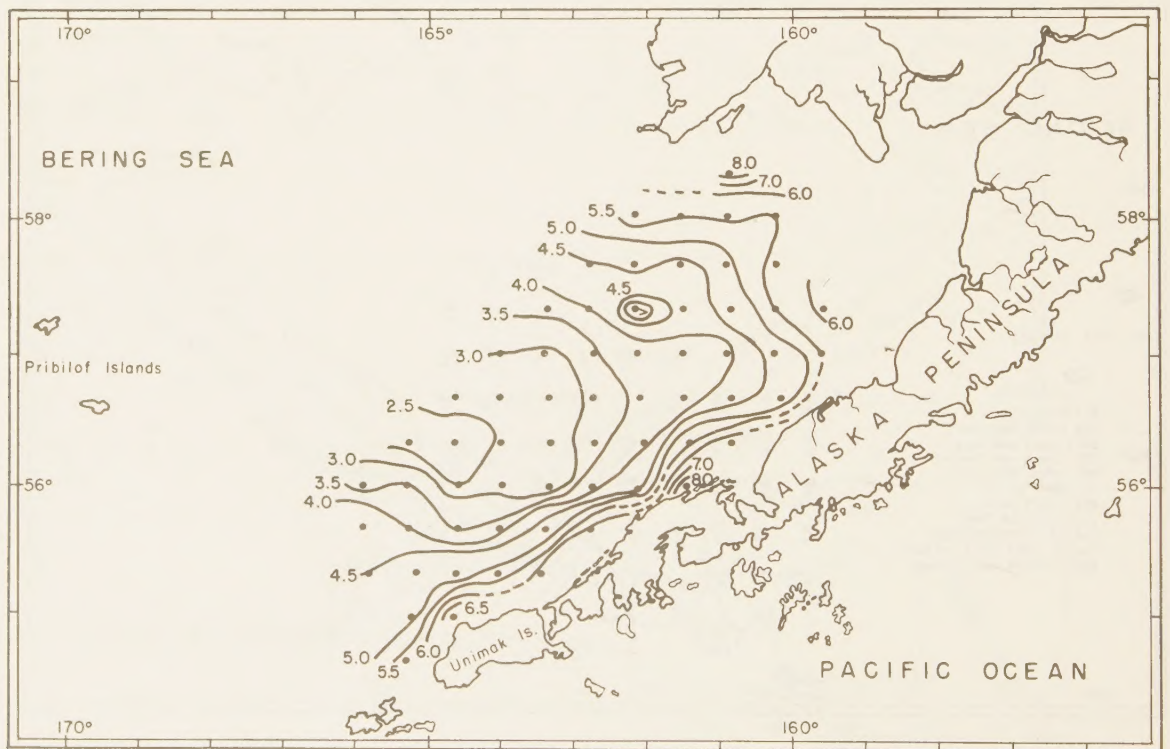


Figure 5.--Bottom temperature distribution, June and July 1958, Dots indicate station locations.



Figure 6.--Bottom temperature distribution, May 1959. Shading indicates area of negative temperatures. Dark dots indicate stations where fauna and temperature data were collected.

In 1959 the station pattern (fig. 6) was covered only once and was reduced considerably. The entire northern portion had to be omitted due to unfavorable weather conditions. As in 1958, the groups of organisms comprising each catch were recorded; however, samples were preserved from only a small number of stations.

Upon the vessel's return the samples were sorted into general groups. Tentative generic or specific identifications were made for the gastropods, pelecypods, decapod crustaceans, and the majority of the echinoderms. After the collections were categorized as specifically as possible, representative samples were sent to systematists for specific identification or verification.

Samples of the mollusks of the 1958 survey (exclusive of the nudibranchs) were sent to Mrs. Nettie MacGinitie. Samples of the 1959 mollusks (exclusive of the nudibranchs) were sent to Dr. Myra Keen. With the aid of their identifications, the author subsequently identified the remainder of the gastropods and pelecypods.

The author identified the decapods. The identifications of the species of brachyuran and anomuran crabs have been verified by

comparison with the collections in the U. S. National Museum. Considerable time was devoted to the identification of the hermit crabs. The most recent work on the genus *Pagurus* (Makarov, 1938) has resulted in some confusion in synonymy. Upon the recommendations of Drs. Fenner A. Chace, Jr. and L. B. Holthuis, the nomenclature employed in the species identification of specimens of the genus *Pagurus* from these surveys is according to Benedict (1892,

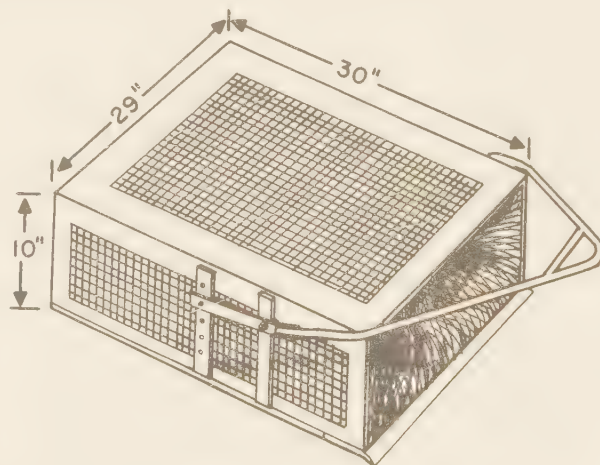


Figure 7.--Dredge used in bottom invertebrate sampling.

1901) or Stevens (1925), with the exception of *Pagurus munitus* (Benedict). Authorities tend to agree that *P. munitus* is actually *P. cavimanus* (Miers) as stated by Makarov.² Identifications of the macrurans were reviewed by Dr. Holthuis. Dr. Dora P. Henry identified all the barnacles.

The tunicates were all identified by Dr. Donald P. Abbott. The author identified a few of the bryozoans, hydroids, annelids, and the majority of the echinoderms. The asteroids have been sent to Dr. Patricio Sanchez, Universidad Catolica de Chile, Santiago, Chile, for verification.

Dr. Paul Illg, University of Washington, has undertaken the identifications of the echiuroids, and Dr. Henning Lemche, Universitets Zoologiske Museum, Denmark, is working on the nudibranchs. Complete information on these groups is not yet available. Other groups, as yet unidentified to species, will be examined in the future. The animals from which specific identifications have been made remain with the respective specialists.

DISCUSSION

In general, distribution of the commonest species, i.e., *Balanus hesperius*, *Pandalus borealis*, *Pagurus alaskensis*, *Paralithodes camtschatica*, *Chionoecetes* sp., *Hyas coarctatus alutaceus*, *Erimacrus isenbeckii*, *Neptunea lyrata*, *Asterias amurensis*, *Gonocephalus caryi*, and *Boltenia ovifera*, did not vary appreciably during the three sampling periods. Although variations in the distribution of species occurring less frequently were apparent, such variations were most probably attributable to inadequate sampling and gear selectivity rather than to real changes in distribution. For these reasons, no separation has been made of the invertebrate catch by sampling periods. As no specific identifications were made aboard the vessel and only random samples were preserved, it cannot be assumed that the stations listed were the only ones at which the species occurred.

Appendix A-1 lists those animals for which identifications have been completed and the stations at which these species were taken. The distribution of some species was so extensive that charts rather than station listings have been used. Whenever possible the original description of the species has been consulted. Appendix A-2 gives the sources used

when the original descriptions were not available. Appendix B lists, by stations, both the species identified from the retained samples and the groups recorded at the time of catch as a composite of all three sampling periods.

The gastropods apparently dominate the surveyed area in species representation. Thirty-five genera, 71 species, and 2 varieties have been identified from these surveys. In addition, 14 specimens have been identified to probable genera, but species identifications have not been possible. In some instances the animals are very small, and reference material has not been available for comparison. Consequently, it is not possible to determine whether the animals are juvenile stages of large forms, or adults of smaller forms. It is possible that some are species not previously described.

Neptunea lyrata is the most widely distributed gastropod, occurring throughout most of the area (fig. 8). The genus *Oenopota* with 10 species, 1 variety, and 6 unidentified species has by far the most specific representation. Members of this genus and of the genera *Margaritopsis* and *Solariella* were taken exclusively with the dredge. Of the larger forms, species representation is greatest in the genus *Buccinum* with six species and one variety, and the genus *Colus* with six species. It is believed that two additional species of *Buccinum* and one additional species of *Colus* are present in the collections, but identifications are uncertain.

The pelecypods rank second in the number of genera and species found in the area. Of the 26 genera and 45 species represented, apparently no single species is extensively distributed.

Among the decapod representatives, the genus *Pagurus* is outstanding in its specific representation. Thirteen species, according to Benedict's classification, are represented in the area. This number, however, will be reduced considerably if Makarov's synonymies are found to be valid. The anomuran, *Paralithodes camtschatica* (fig. 9), and the brachyuran, *Erimacrus isenbeckii* (fig. 10), are particularly noteworthy because of their extensive distribution throughout the area. Distinction between the species of *Chionoecetes* was not made at the time of first examination; thus distribution of the two species *Chionoecetes opilio* (Fabricius, 1780) and *C. bairdi* Rathbun, 1924, could not be determined. The genus, however, is represented in almost the entire area (fig. 11).

Tunicates in the eastern Bering Sea are represented by 8 genera and 12 species. *Boltenia ovifera* appears to be the most widely distributed species. Members of all genera

² Makarov (1938) cites *Eupagurus munitus* Benedict as a synonym of *Pagurus cavimanus* in the Russian text of his paper; however, in his English summary of the possible synonymy of *Pagurus gilli* and *P. cavimanus*, he refers to *Pagurus gilli* = *Pagurus minutus*. The use of *P. minutus* rather than *P. munitus* is obviously a typographical error, as *P. minutus* is a species described from the Gulf of California bearing no resemblance to *P. cavimanus*.

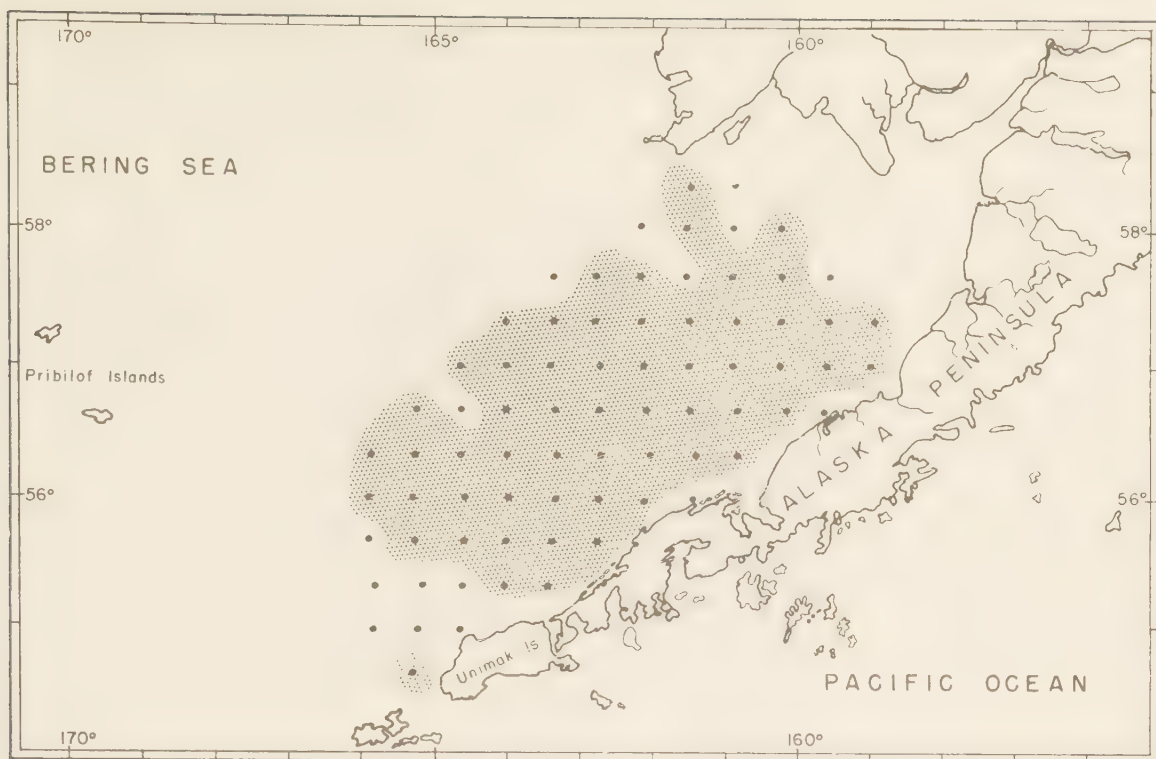


Figure 8.--Distribution of *Neptunea lyrata* during spring and summer sampling, 1958 and 1959.



Figure 9.--Distribution of *Paralithodes camtschatica* during the spring and summer sampling, 1958 and 1959.

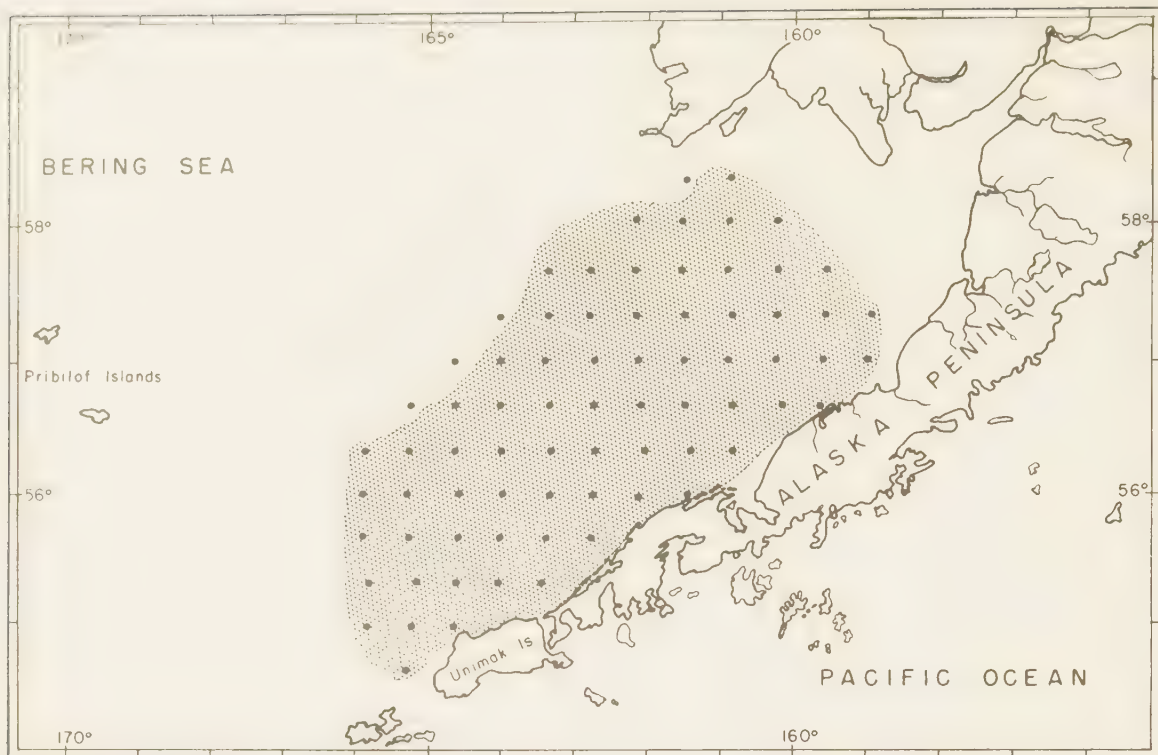


Figure 10.--Distribution of *Erimacrus isenbeckii* during spring and summer sampling, 1958 and 1959.

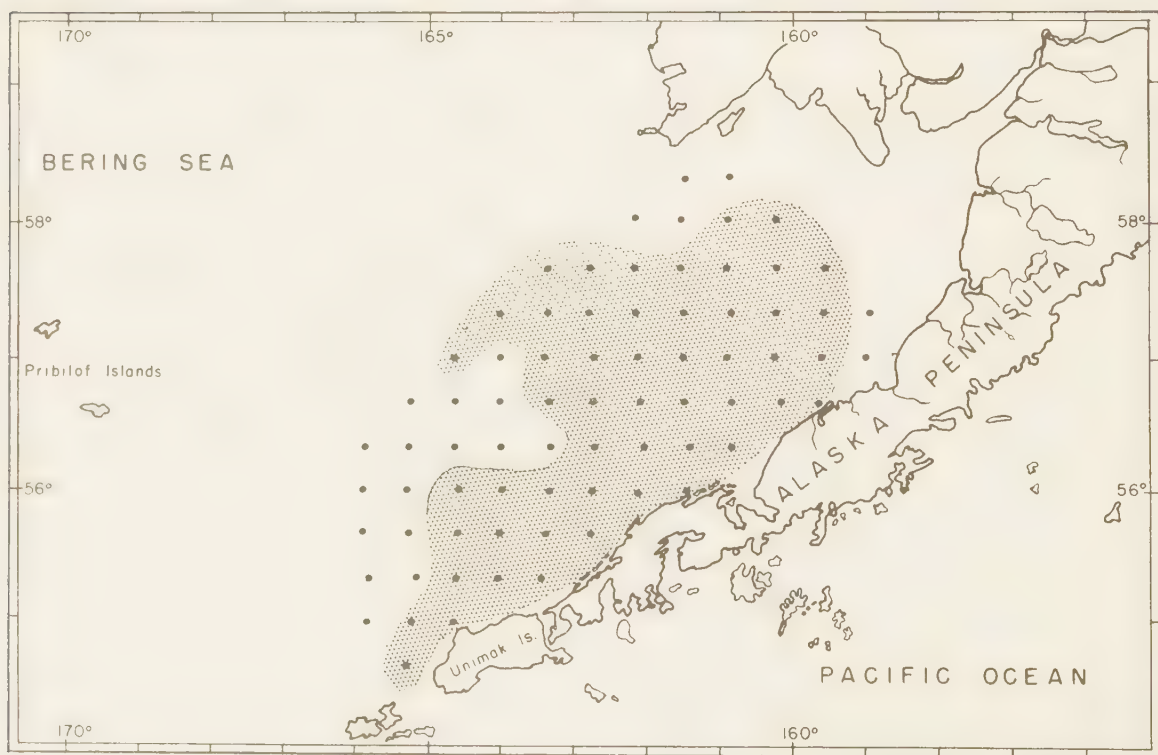


Figure 11.--Distribution of *Chionoecetes* sp. during spring and summer sampling, 1958 and 1959.

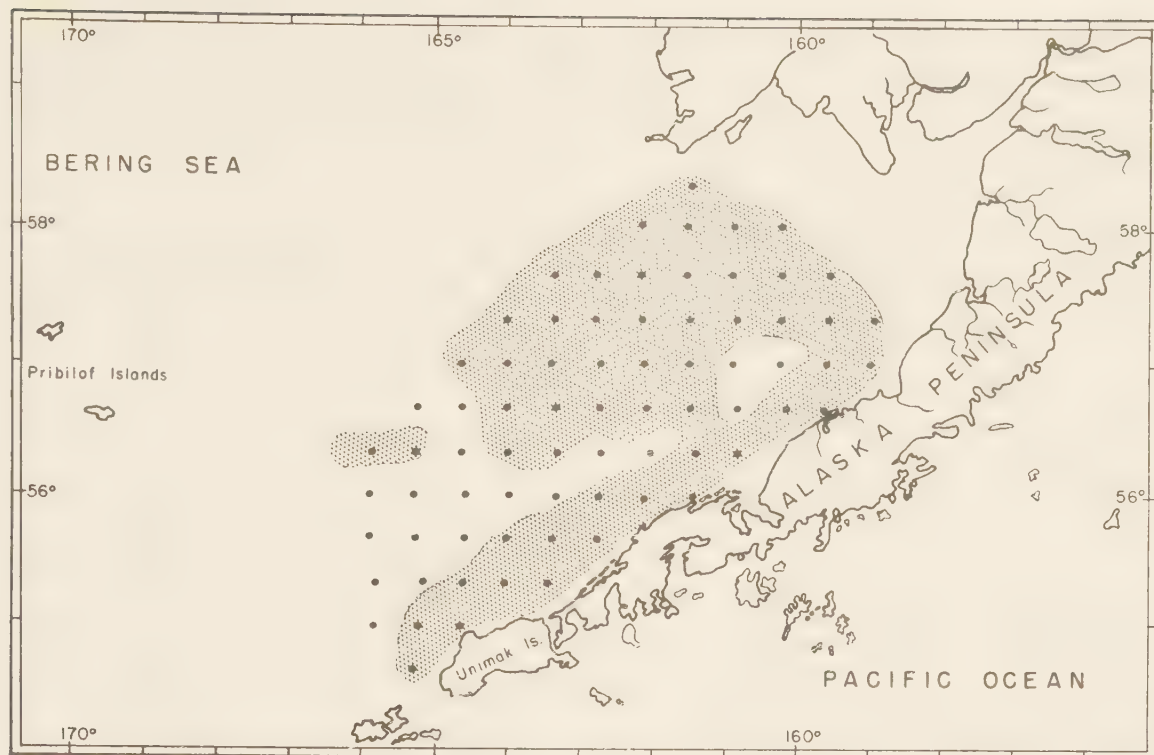


Figure 12.--Distribution of *Asterias amurensis* during spring and summer sampling, 1958 and 1959.

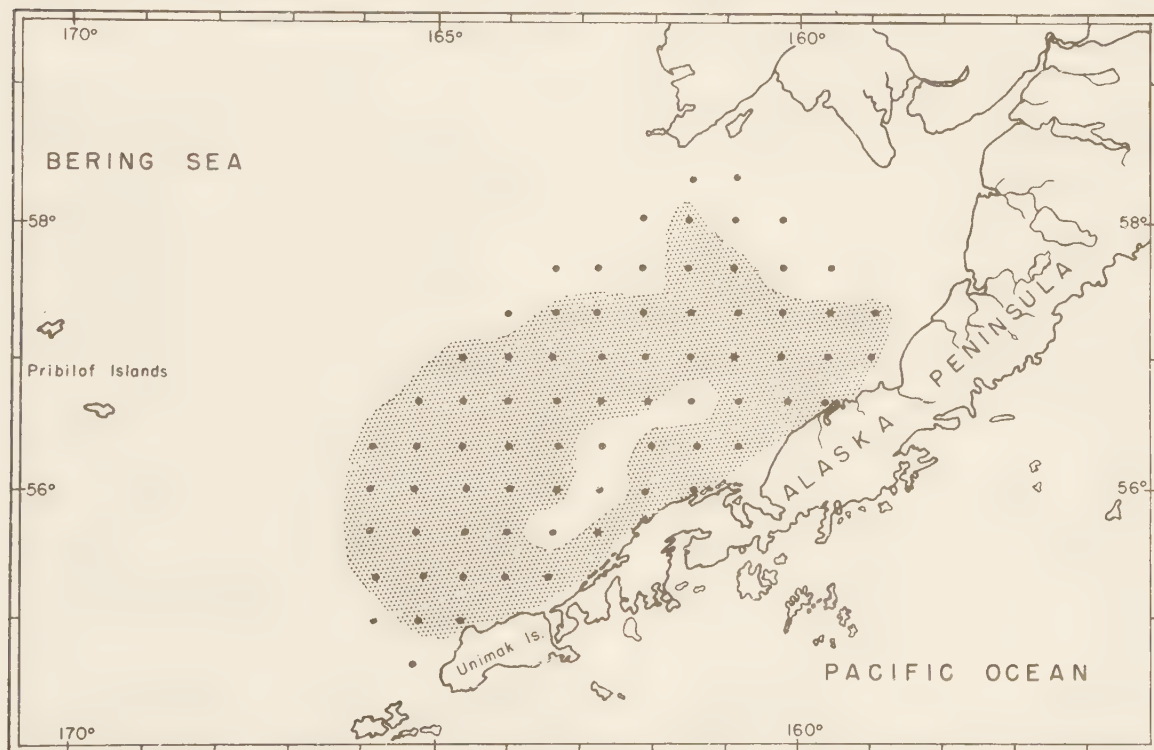


Figure 13.--Distribution of *Gorgonocephalus caryi* during spring and summer sampling, 1958 and 1959.

apparently are restricted in their distribution to the northeastern part of the sampling area.

The echinoderms are, for the most part, apparently limited in their distribution, with the exception of the asteroid, *Asterias amurensis* (fig. 12), and the ophiuroid, *Gorgonocephalus caryi* (fig. 13). These two species are widely distributed in the eastern Bering Sea.

SUMMARY

This report is presented as a limited checklist of benthic invertebrate species found during the king crab surveys of 1958 and 1959 in the eastern Bering Sea. The samples were collected throughout the area by means of an otter trawl, supplemented in some places by a dredge.

Specific identifications were made for the gastropods (exclusive of nudibranchs), pelecypods, barnacles, decapod crustaceans, tunicates, the majority of the echinoderms, a small number of bryozoans, hydroids, and annelids. Other organisms are classified generally to class or order.

The surveys indicate that the gastropods rank first in species representation, followed by the pelecypods. Of the decapods, the genus *Pagurus* is represented by the largest number of species.

A number of species are widely distributed throughout the surveyed area: *Neptunea lyrata*, *Erimacrus isenbeckii*, *Paralithodes camtschatica*, *Asterias amurensis*, and *Gorgonocephalus caryi*.

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APPENDIX A

A-1.--List of species and area of occurrence

Major group	Current name	Original name	Station
CRUSTACEA:			
Cirripedia	<i>Balanus balanus balanus</i> (Linnaeus, 1758)	<i>Lepas balanus</i>	D-11 H-9 E-12 H-11 F-11 H-12 F-13 H-13 G-9 H-14 G-10 I-8 G-12 I-11 G-13 J-11 G-14 J-13 H-8 Z-5
	<i>Balanus crenatus</i> Bruguière, 1789	<i>Balanus crenatus</i>	A-6 D-9 D-10 E-12 F-11 F-13 H-11 Z-5 Unalaska Bay
	<i>Balanus evermanni</i> Pilsbry, 1907	<i>Balanus evermanni</i>	E-8 Z-5
	<i>Balanus hesperius</i> Pilsbry, 1916	<i>Balanus hesperius</i>	C-5 E-5 F-13 H-13 C-6 E-6 F-14 H-14 C-7 E-7 G-6 H-15 D-4 E-8 G-7 I-8 D-5 E-9 G-8 I-10 D-6 E-12 G-9 I-11 D-7 F-5 G-12 I-12 D-8 F-6 G-15 I-14 D-9 F-7 H-9 K-11 D-10 F-11 H-11 Z-5
	<i>Balanus rostratus apertus</i> Pilsbry, 1911	<i>Balanus rostratus apertus</i>	A-6 F-14 B-7 G-12 B-8 H-11 D-9 I-8 D-11 J-11 E-10 Z-5 E-11 E-12 F-11 F-13

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station			
CRUSTACEA--Con.						
Decapoda:						
Macrura	<i>Pandalus borealis eous</i> Makarov, 1935 ¹	<i>Pandalus borealis eous</i>	A-4	D-4	E-9	G-7
			A-5	D-5	E-10	G-8
			B-4	D-6	E-11	G-9
			B-5	D-7	F-5	G-12
			B-6	D-8	F-6	H-14
			C-4	E-4	F-8	I-11
			C-5	E-5	F-9	I-12
			C-6	E-6	F-10	I-13
			C-7	E-7	F-11	I-14
			C-8	E-8	G-6	Z-5
	<i>Pandalus goniurus</i> Stimpson, 1860	<i>Pandalus goniurus</i>	B-4	G-10		
			C-9	G-13		
			D-4	G-14		
			D-7	H-7		
			E-8	H-14		
			E-12	H-15		
			F-5	I-8		
			F-12	J-11		
			F-13	J-13		
			G-8	K-11		
	<i>Eualus</i> sp.		G-12			
	<i>Lebbeus groenlandicus</i> (Fabricius, 1775)	<i>Astacus Groenlandicus</i>	G-14			
	<i>Crangon communis</i> Rathbun, 1899 ²	<i>Crangon communis</i>	C-7			
			E-7			
			E-8			
			G-12			
	<i>Crangon dalli</i> Rathbun, 1902	<i>Crangon dalli</i>	B-8	E-12	G-12	I-9
			C-6	F-6	G-13	I-10
			C-7	F-7	G-14	I-11
			C-8	F-8	H-7	I-12
			C-9	F-9	H-8	I-14
			D-9	F-12	H-9	J-11
			D-10	F-13	H-11	J-12
			D-11	G-7	H-13	J-13
			E-7	G-9	H-14	K-11
			E-10	G-10	H-15	Z-5
			E-11	G-11	I-8	
	<i>Crangon</i> sp.?		I-14			

¹ Makarov (1935) cites *P. borealis eous* as a variation of *P. borealis*. Dr. Holthuis believes that it must have the rank of sub-species (personal conversation).

² Kobiakova (1937) and other Russian systematists consider *C. communis* to be a member of the genus *Sclerocrangon*.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--Con.			
Decapoda--Con.			
Macrura--Con.	<i>Sclerocrangon boreas</i> (Phipps, 1774)	<i>Cancer boreas</i>	H-15
	<i>Argis dentata</i> (Rathbun, 1902)	<i>Nectocrangon dentata</i>	D-7 E-5 E-7 F-5 F-6 F-7 F-8 G-7 G-8 H-7
Anomura	<i>Pagurus alaskensis</i> (Benedict, 1892)	<i>Eupagurus alaskensis</i>	A-6 E-12 H-9 J-13 B-6 F-11 H-11 K-11 C-6 F-12 H-13 D-5 F-13 H-14 D-6 F-14 H-15 D-8 G-11 I-12 D-10 G-12 I-13 D-11 G-13 I-14 E-9 G-14 J-10 E-11 G-15 J-11
	<i>Pagurus aleuticus</i> (Benedict, 1892)	<i>Eupagurus aleuticus</i>	B-4 C-5 C-6 C-9 D-5 E-5 E-6 F-7 F-11 Z-5
	<i>Pagurus brandti</i> (Benedict, 1892)	<i>Eupagurus brandti</i>	C-5 F-6 G-12 C-7 F-7 H-7 D-9 F-8 H-8 D-10 F-9 H-11 D-11 F-10 H-13 E-5 F-11 I-11 E-6 F-14 E-7 G-7 E-8 G-8 F-5 G-9
	<i>Pagurus cavimanus</i> (Miers, 1879)	<i>Eupagurus cavi- manus</i>	D-5 Z-5

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--Con.			
Decapoda--Con.			
Anomura--Con.	<i>Pagurus confragosus</i> (Benedict, 1892)	<i>Eupagurus confragosus</i>	C-6 C-8 D-5 D-6 E-5 E-6 Z-5
	<i>Pagurus hirsutiussculus</i> (Dana, 1851) [1851b]	<i>Bernhardus hirsutiussculus</i>	Unalaska Bay
	<i>Pagurus kennerlyi</i> (Stimpson, 1864) ³	<i>Eupagurus kennerlyi</i>	A-6 E-7 F-13 G-7 G-9 I-12
	<i>Pagurus rathbuni</i> (Benedict, 1892)	<i>Eupagurus rathbuni</i>	Unknown
	<i>Pagurus</i> sp.		D-10 G-8 G-12 Z-5
	<i>Pagurus</i> sp.		B-8 E-7 H-13 C-9 E-10 H-14 D-4 F-9 I-8 D-5 F-13 I-11 D-6 G-8 J-11 D-8- G-10 Z-5 D-9 G-12 E-4 G-14 E-5 H-8 E-6 H-9
	<i>Pagurus splendescens</i> Owen, 1839	<i>Pagurus splendescens</i>	D-10 H-11 E-12 I-8 F-6 I-9 F-7 I-10 F-8 I-12 F-9 J-11 G-7 G-8 H-7 H-8

³ Stevens (1925) gives the date as 1894, which is incorrect.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--con.			
Decapoda--Con.			
Anomura--Con.	<i>Pagurus tenuimanus</i> (Dana, 1851) [1851h]	<i>Bernhardus tenuimanus</i>	A-6 C-9 D-11 E-12 F-11 F-13 Z-5
	<i>Pagurus trigonocheirus</i> (Stimpson, 1858)	<i>Eupagurus trigonocheirus</i>	Uncertain
	<i>Paralithodes camtschatica</i> (Tilesius, 1815) ⁴	<i>Maja camtschatica</i>	See figure 9 Unalaska Bay
	<i>Placetron wosnessenskii</i> Schalfeew, 1892	<i>Placetron wosnessenskii</i>	Unalaska Bay
	<i>Phyllolithodes papillosus</i> Brandt, 1848 [1848a]	<i>Phyllolithodes papillosus</i>	Unalaska Bay
Brachyura	<i>Oregonia gracilis</i> Dana, 1851 [1851a]	<i>Oregonia gracilis</i>	B-7 G-12 C-9 G-14 D-10 H-13 E-11 H-14 E-12 H-15 F-10 Z-5 F-11 F-12 F-13 G-11
	<i>Chionoecetes</i> sp.		See figure 11.
	<i>Hyas lyratus</i> Dana, 1851 [1851a]	<i>Hyas lyratus</i>	C-9 E-11 J-11 D-5 F-11 J-13 D-7 F-12 K-11 D-10 F-13 Z-5 D-11 G-12 E-6 G-13 E-7 G-14 E-8 H-13 E-9 H-15 E-10 I-13

⁴ Marukawa (1933), and several other authors cite the date as 1812. Makarov (1938) and Rathbun (1904) cite the date as 1815. The original description is published in the volume for 1812, however, the date of publication is 1815.

A-I.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--Con.			
Decapoda--Con.			
Brachyura--Con.	<i>Hyas coarctatus alutaceus</i> Brandt, 1851	<i>Hyas coarctatus alutaceus</i>	C-8 E-11 G-7 H-12 D-4 E-12 G-8 H-13 D-5 F-6 G-10 H-14 D-7 F-7 G-11 I-8 D-8 F-8 G-12 I-9 E-4 F-9 G-13 I-11 E-5 F-10 G-14 I-12 E-6 F-11 H-7 I-13 E-7 F-12 H-8 I-14 E-8 F-13 H-9 J-10 E-9 F-14 H-10 J-13 E-10 G-6 H-11 Z-5
	<i>Telmessus cheiragonus</i> (Tilesius, 1815)	<i>Cancer cheiragonus</i>	J-11 K-12 Walrus Islands
	<i>Erimacrus isenbeckii</i> (Brandt, 1848) [1848h]	<i>Platycorystes (Podacanthus) isenbeckii</i>	See figure 12
	<i>Cancer oregonensis</i> (Dana, 1852) (Juveniles)	<i>Trichocera oregonensis</i>	A-6 G-8 C-6 G-12 C-8 Z-5 D-9 D-10 E-10 E-11 E-12 F-11 F-12
PELECYPODA	<i>Nucula bellotii</i> Adams, 1856 ⁵	<i>Nucula bellotii</i>	D-6 D-9 F-11 G-8 G-12 H-10 H-11
	<i>Nuculana radiata</i> (Krause, 1885)	<i>Leda pernula</i> var. <i>radiata</i>	C-6 E-5 E-7 F-8 G-8 H-11

⁵ *N. bellotii* antecedes *N. quirica* Dall, 1916 (Schenck, 1939).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	<i>Yoldia myalis</i> (Couthouy, 1838)	<i>Nucula myalis</i>	D-10 E-11 E-12 F-11 G-8 G-9 G-11
	<i>Yoldia seminuda</i> Dall, 1871	<i>Yoldia seminuda</i>	D-9
	<i>Yoldia scissurata</i> Dall, 1898	<i>Yoldia scissurata</i>	D-9 H-8 H-11
	<i>Yoldia</i> sp		F-5
	<i>Limopsis akutanica</i> Dall, 1916	<i>Limopsis akutanica</i>	E-12
	<i>Chlamys behringiana</i> (Middendorff, 1849) [1849b]	<i>Pecten islandicus</i> var. <i>beringianus</i>	E-12
	<i>Chlamys rubida</i> (Hinds, 1845) ⁶	<i>Pecten rubidus</i>	Z-5
	<i>Chlamys islandica</i> (Müller, 1776)	<i>Pecten islandicus</i>	E-8
	<i>Pododesmus macroschisma</i> (Deshayes, 1839)	<i>Anomia macroschisma</i>	E-7 E-8 E-12 H-12 Z-5
	<i>Mytilus edulis</i> Linnaeus, 1758	<i>Mytilus edulis</i>	E-10 E-12 H-11
	<i>Musculus discors</i> var. <i>laevigatus</i> forma <i>substriata</i> (Gray, 1824)	<i>Modiola laevigatus</i> var. <i>substriata</i>	G-6 G-7 G-8 H-9 Z-5
	<i>Musculus niger</i> (Gray, 1824)	<i>Modiola nigra</i>	D-9
	<i>Modiolus modiolus</i> (Linnaeus, 1758)	<i>Mytilus modiolus</i>	B-7 D-5 D-11 E-8 G-14 H-11 H-12 K-12 Z-5

⁶ As pointed out by Grau (1959) there is now an earlier name for *Pecten hindsii*, Carpenter, 1864. Since official rejection of Martyn's "Universal Conchologist" (International Commission, Opinion 456, 1957), *P. rubidus* (*Chlamys rubidus*) Hinds is no longer preoccupied so that name can now be used for *Chlamys hindsii*, Carpenter. (Myra Keen, personal correspondence).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	<i>Thracia myopsis</i> (Möller, 1842, ex Beck MS.) ?	<i>Thracia myopsis</i>	H-11
	<i>Thracia beringi</i> Dall, 1915	<i>Thracia beringi</i>	H-11
	<i>Lyonsia norvegica</i> (Gmelin, 1791) ⁷	<i>Mya norvegica</i>	G-8
	<i>Lyonsia</i> sp.		D-9 H-11
	<i>Astarte alaskensis</i> Dall, 1903	<i>Astarte alaskensis</i>	D-9
	<i>Astarte montagui</i> (Dillwyn, 1817) (probably) (Juveniles)	<i>Venus montagui</i>	F-11 G-12
	<i>Cardita crebricostata</i> Krause, 1885	<i>Cardita borealis</i> var. <i>crebricostata</i>	A-6 C-9 D-9 D-10 E-10 F-11 G-12 H-11 I-14 Z-5
	<i>Thyasira flexuosa</i> var. <i>sarsi</i> Philippi, 1845	<i>Tellina flexuosa</i> Montagu <i>Axinus sarsi</i> Philippi	F-8
	<i>Diplodonta aleutica</i> Dall, 1901	<i>Diplodonta aleutica</i>	F-11
	<i>Diplodonta orbella</i> (Gould, 1852)	<i>Lucina orbella</i>	D-9 H-11
	<i>Pseudopythina compressa</i> Dall, 1899	<i>Erycina (pseudopythina) compressa</i>	H-11
	<i>Clinocardium ciliatum</i> (Fabricius, 1780)	<i>Cardium ciliatum</i>	D-9 E-5 F-5 G-6 G-7 G-8 H-7

⁷ The date is wrongly cited as 1790 in Sherborn (1902) and later authors, but Dr. Keen feels there is good evidence that it should be 1791 (personal correspondence).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	<i>Serripes grönlandicus</i> (Bruguère, 1789)	<i>Cardium grönlandicum</i>	A-6 F-6 H-10 B-8 F-7 H-11 C-7 F-13 I-8 C-9 G-6 I-10 D-9 G-7 I-11 D-10 G-8 J-13 E-6 G-13 Z-5 E-7 H-7 E-12 H-8 F-5 H-9
	<i>Saxidomus giganteus</i> (Deshayes, 1839) ⁸	<i>Venerupis gigantea</i>	Uncertain
	<i>Liocyma beckii</i> Dall, 1870 ⁹	<i>Liocyma beckii</i>	G-8
	<i>Psephidia ovalis</i> Dall, 1902 [1902h]	<i>Psephidia ovalis</i>	Z-5
	<i>Tellina lutea</i> Wood, 1828	<i>Tellina lutea</i>	D-9 D-10 E-12 F-11 H-11 I-8 J-10 J-13
	<i>Macoma brota</i> Dall, 1916	<i>Macoma brota</i>	G-12
	<i>Macoma brota lipara</i> Dall, 1916	<i>Macoma brota lipara</i>	B-8 C-9 E-8 E-11
	<i>Macoma calcarea</i> (Gmelin, 1791) ¹⁰	<i>Tellina calcarea</i>	D-9 E-4 E-8 G-9 G-12 H-8 H-10 H-11
	<i>Macoma incongrua</i> (Martens, 1865)	<i>Tellina incongrua</i>	B-8 C-9 D-9 E-8 E-11 H-11 Z-5

⁸ Grant and Gale (1931) consider *S. giganteus* a variety of *S. nuttalli* Conrad.

⁹ MacGinitie (1959) lists *L. beckii* and *L. fluctuosa* Gould in synonymy.

¹⁰ MacGinitie (1959) and Grant and Gale (1931) give 1792 as the date. Dr. Keen believes there is good evidence for the date of 1791 (personal correspondence).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	<i>Macoma moesta</i> (Deshayes, 1854)	<i>Tellina moesta</i>	D-5 D-9 H-11
	<i>Macoma planiuscula</i> Grant and Gale, 1931	<i>Macoma planiuscula</i>	F-11
	<i>Siliqua alta</i> (Broderip and Sowerby, 1829)	<i>Solen altus</i>	D-9 E-12
	<i>Siliqua media</i> (Sowerby, 1839) ¹¹	? <i>Solen medius</i>	E-12
	<i>Siliqua patula</i> (Dixon, 1788) ¹²	<i>Solen patulus</i>	B-8
	<i>Spisula voyi</i> (Gabb, 1869)	<i>Callista voyi</i>	B-8 G-12 I-11 C-7 G-13 I-12 D-10 G-14 I-13 D-11 G-15 I-14 E-11 H-8 J-11 E-12 H-11 J-12 F-11 H-13 J-13 F-12 H-14 F-13 H-15 G-10 I-10
	<i>Mya japonica</i> Jay, 1856 ¹³	<i>Mya japonica</i>	G-15
	<i>Mya pseudoarenaria</i> Schlessch, 1931	<i>Mya pseudoarenaria</i>	D-10 H-11
	<i>Hiatella arctica</i> (Linnaeus, 1767)	<i>Saxicava arctica</i>	D-11 E-8 G-12 G-15 H-11
	<i>Hiatella striata</i> (Fleuriau de Bellevue, 1802)	<i>Saxicava rugosa</i>	D-11 K-11 E-6 E-8 E-12 F-12 F-13 G-13 G-14 H-14 J-11

¹¹ Considered a synonym for *S. alta* by Grant and Gale (1931).¹² "Apparently the only differences between *Siliqua media* and *S. patula* are that the rib on the inside is more nearly vertical in *S. media*, and *S. media* is heavier than *S. patula*. Future study may show that these differences are invalid for there may be intergrades as far as the ribs are concerned. And the heaviness or thickness of the shell is a common characteristic of Arctic shells and is not a reliable diagnostic characteristic." (N. MacGinitie, personal correspondence).¹³ Considered by Grant and Gale (1931) as a variety of *Mya arenaria* (Linnaeus).

A-1.- List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA	<i>Lepeta concentrica</i> (Middendorff, 1851) ?	<i>Patella (Crypto-branchia) caeca</i> var. <i>concentrica</i>	D-11
	<i>Acmaea scutum</i> Eschscholtz, 1833 ?	<i>Acmaea scutum</i>	Unalaska Bay
	<i>Margaritopsis grosvenori</i> (Dall, 1926)	<i>Margarites grosvenori</i>	D-9 H-11
	<i>Solariella obscura</i> (Couthouy, 1838)	<i>Turbo obscurus</i>	D-9 H-11 G-12
	<i>Epitonium greenlandicum</i> (Perry, 1811)	<i>Scalaria greenlandica</i>	Z-5
	<i>Aquilonaria turneri</i> Dall, 1887	<i>Aquilonaria turneri</i>	F-14
	<i>Tachyrhynchus erosum</i> (Couthouy, 1838)	<i>Turritella erosa</i>	A-6 D-6 D-9 E-9 F-8 F-11 G-8 G-10 H-11
	<i>Tachyrhynchus</i> sp. or <i>Ptychatractus</i> sp.		I-11
	<i>Crepidula grandis</i> Middendorff, 1849 [1849a]	<i>Crepidula grandis</i>	E-8 H-12 F-5 H-13 F-9 H-14 F-11 Z-5 F-12 F-13 G-8 G-13 H-8 H-11
	<i>Trichotropis cancellata</i> Hinds, 1843	<i>Trichotropis cancellata</i>	A-6
	<i>Trichotropis coronata</i> Gould, 1860	<i>Trichotropis (Iphin'oe) coronata</i>	G-8
	<i>Trichotropis kroyeri</i> Philippi, 1849	<i>Trichotropis kroyeri</i>	G-8

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	<i>Trichotropis</i> sp. (possibly)		G-8 H-7 H-8
	<i>Cryptonatica aleutica</i> Dall, 1919 ¹⁴ [1919b]	<i>Cryptonatica aleutica</i>	D-11 E-12
	<i>Natica clausa</i> Broderip & Sowerby, 1829	<i>Natica clausa</i>	D-9 G-8 H-11 Z-5
	<i>Polinices nanus</i> (Möller, 1842)	<i>Natica nana</i>	F-11 H-11
	<i>Polinices pallidus</i> (Broderip and Sowerby, 1829)	<i>Natica pallida</i>	D-10 D-11 F-6 F-7 H-8 H-10
	<i>Polinices</i> sp.		D-9 H-11
	<i>Bulbus apertus</i> (Loven, 1846)	<i>Natica apertus</i>	Uncertain
	<i>Fusitriton oregonensis</i> (Redfield, 1848)	<i>Triton oregonensis</i>	A-4 E-6 A-6 E-8 B-7 E-12 C-5 F-7 C-6 F-11 C-7 F-12 C-8 F-13 D-5 Z-5 D-7 D-8
	<i>Cerithiopsis stejnegeri</i> Dall, 1884 ¹	<i>Cerithiopsis stejnegeri</i>	E-9 E-11 G-11 G-12 H-13
	<i>Velutina plicatilis</i> var. <i>cryptospira</i> Middendorff, 1849 [1849a]	<i>Velutina cryptospira</i>	H-11 I-8
	<i>Velutina velutina</i> (Müller, 1776)	<i>Bulla velutina</i>	D-11 G-12

¹⁴ Grant and Gale (1931) consider *C. aleutica* a synonym of *Natica russa* Gould.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	<i>Boreotrophon clathratus</i> (Linnaeus, 1767)	<i>Murex clathratus</i>	C-5 C-8 E-7 E-8 E-9 G-8 H-7
	<i>Boreotrophon dalli</i> (Kobelt, 1878)	<i>Trophon dalli</i>	G-7 G-8
	<i>Boreotrophon</i> , cf. <i>B. smithi</i> Dall, 1902 ¹⁵ [1902a]	<i>Boreotrophon</i> (stuarti var?) <i>smithi</i>	G-8
	<i>Thais emarginata</i> (Deshayes, 1839)	<i>Purpura emarginata</i>	Unalaska Bay
	<i>Thais lima</i> (Gmelin, 1791)	<i>Murex lima</i>	I-11
	<i>Buccinum angulosum</i> Gray, 1839	<i>Buccinum</i> <i>angulosum</i>	G-6 G-7 G-8
	<i>Buccinum angulosum</i> var. <i>transliratum</i> Dall, 1919 [1919b]	<i>Buccinum</i> <i>angulosum</i> var. <i>transliratum</i>	C-9 E-12
	<i>Buccinum glaciale</i> Linnaeus, 1761	<i>Buccinum glaciale</i>	F-7
	<i>Buccinum</i> , cf. <i>B. plectrum</i> Stimpson, 1865	<i>Buccinum plectrum</i>	F-12 G-8
	<i>Buccinum orotundum</i> Dall, 1921 ¹⁶	<i>Buccinum</i> <i>pemphigus</i> <i>orotundum</i>	G-8
	<i>Buccinum polare</i> Gray, 1839	<i>Buccinum polare</i>	C-5 D-11 F-5 F-6 F-7 G-6 G-7 G-8 H-7 J-10

¹⁵ Abbot (1954) considers *B. smithi* a synonym of *B. stuarti* E. A. Smith.

¹⁶ MacGinitie (1959) cited *B. orotundum* Dall, and *B. pemphigus orotundum* Dall, as synonyms of *B. polare*, Gray.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	<i>Buccinum tenue</i> Gray, 1839	<i>Buccinum tenue</i>	F-6 F-7 G-6 G-7 Z-5
	<i>Buccinum undatum</i> var. <i>striatum</i> Pennant, 1812	<i>Buccinum undatum</i> var. <i>striatum</i>	F-6 F-7
	<i>Buccinum</i> sp. (Possibly) (Juveniles)		G-12
	<i>Volutharpa perryi</i> (Jay, 1856)	<i>Bullia perryi</i>	G-7
	<i>Pyrulofusus deformis</i> (Reeve, 1847)	<i>Fusus deformis</i>	F-6 G-8 J-12 Z-5
	<i>Beringius kennicotti</i> (Dall, 1871) ¹⁷	<i>Buccinum</i> <i>kennicotti</i>	E-12
	<i>Beringius stimpsoni</i> (Gould, 1860)	<i>Buccinum stimpsoni</i>	H-7 H-13
	<i>Beringius undatus</i> Dall, 1919 [1919b]	<i>Beringius</i> <i>crebricostatus</i> <i>undatus</i>	D-11 Z-5
	<i>Beringius</i> sp., possibly young of <i>B. stimpsoni</i> (Juveniles)		D-9
	<i>Liomesus canaliculatus</i> (Dall, 1874)	<i>Buccinopsis</i> <i>canaliculatus</i>	H-14
	<i>Mohnia</i> sp., (perhaps a variant of <i>M. robusta</i> or <i>M. frielei</i>)		D-6 F-10 Z-5
	<i>Mohnia</i> sp. ? (probably)		D-7 E-5
	<i>Mohnia</i> sp. ?		D-9
	<i>Ancistrolepis magnus</i> Dall, 1895	<i>Chrysodomus</i> (<i>Ancistrolepis</i>) <i>magnus</i>	E-5 F-5
	<i>Colus barbarinus</i> Dall, 1919 ? [1919b]	<i>Colus</i> (<i>Aulacofusus</i>) <i>barbarinus</i>	E-8

¹⁷ The date given by Dall (1921) as 1907 was corrected by Dall (1923) to read 1871. LaRocque (1953) did not correct the 1907 date.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA --Con.	<i>Colus halli</i> (Dall, 1873)	<i>Sipho hallii</i>	G-8
	<i>Colus</i> , cf. <i>C. herendeeni</i> (Dall, 1902) [1902a] (Juveniles)	<i>Tritonofusus</i> (<i>Plicifusus</i>) <i>herendeeni</i>	E-12
	<i>Colus jordani</i> (Dall, 1913)	<i>Tritonofusus</i> <i>jordani</i>	D-11 E-8
	<i>Colus spitzbergensis</i> (Reeve, 1855)	<i>Fusus spitzbergensis</i>	D-8 E-6 E-8 F-6 F-7 F-13
	<i>Colus</i> , cf. <i>C. trophius</i> (Dall, 1919) [1919b]	<i>Aulacofusus</i> (<i>Limatofusus</i>) <i>trophius</i>	G-8
	<i>Colus</i> sp.		E-8
	<i>Neptunea beringiana</i> var. <i>varicifera</i> (Dall, 1907)	<i>Chrysodomus</i> <i>beringiana</i> <i>varicifera</i>	H-11
	<i>Neptunea heros</i> (Gray, 1850)	<i>Chrysodomus</i> <i>heros</i>	D-10 H-11 E-6 H-14 E-9 I-13 F-7 J-11 F-8 F-9 G-7 G-8 G-9
	<i>Neptunea lyrata</i> (Gmelin, 1791) ¹⁸	<i>Murex lyrata</i>	See figure 8
	<i>Neptunea pribiloffensis</i> (Dall, 1919) [1919b]	<i>Chrysodomus</i> <i>pribiloffensis</i>	B-4 C-6 D-5 E-5 F-7 F-9 F-13
	<i>Plicifusus brunneus</i> (Dall, 1877)	<i>Chrysodomus</i> <i>brunneus</i>	F-11
	<i>Plicifusus kroyeri</i> (Möller, 1842)	<i>Fusus kroyeri</i>	F-9 Z-5

¹⁸ Abbott (1954) considers *N. lyrata* (Gmelin) a synonym of *N. lirata* (Martyn).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	<i>Volutopsius castaneus</i> (Mörch, 1858)	<i>Neptunea castanea</i>	G-8
	<i>Volutopsius fragilis</i> (Dall, 1891)	<i>Strombella fragilis</i>	F-5 F-7 G-6 G-7 H-7 H-11
	<i>Volutopsius melonis</i> (Dall, 1891)	<i>Strombella melonis</i>	Z-5
	<i>Volutopsius middendorffi</i> (Dall, 1891) (possibly) (Juveniles)	<i>Strombella middendorffi</i>	G-8
	<i>Admete couthouyi</i> (Jay, 1839)	<i>Cancellaria couthouyi</i>	F-11
	<i>Admete couthouyi middendorffiana</i> (Dall, 1885)	<i>Admete middendorffiana</i>	G-8
	<i>Leucosyrinx circinata</i> (Dall, 1873)	<i>Pleurotoma circinata</i>	C-8 F-7
	<i>Oenopota elegans</i> (Möller, 1842)	<i>Defrancia elegans</i>	D-9
	<i>Oenopota harpa</i> (Dall, 1885)	<i>Bela harpa</i>	D-9 G-12
	<i>Oenopota (Nodotoma) impressa</i> (Mörch, 1869)	<i>Pleurotom impressa</i>	G-8
	<i>Oenopota krausei</i> (Dall, 1886) (possibly)	<i>Bela krausei</i>	D-9
	<i>Oenopota kyskana</i> (Dall, 1919) ? [1919a]	<i>Lora kyskana</i>	D-9 H-11
	<i>Oenopota quadra</i> (Dall, 1919)? [1919a]	<i>Lora quadra</i>	D-9
	<i>Oenopota (Propebela) rugulata</i> (Reeve, 1843 ex Möller MS)	<i>Pleurotoma rugulata</i>	H-11
	<i>Oenopota solida</i> (Dall, 1886)	<i>Bela solida</i>	H-11
	<i>Oenopota (Obesotoma) tenuilirata</i> (Dall, 1871)	<i>Bela tenuilirata</i>	G-8
	<i>Oenopota tenuilirata cymata</i> (Dall, 1919) [1919a]	<i>Lora tenuilirata cymata</i>	D-9
	? <i>Oenopota tenuissima</i> (Dall, 1919) [1919a]	<i>Lora tenuissima</i>	H-11

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	<i>Oenopota (Turritomella)</i> sp.		F-11 G-12 H-11 Z-5
	<i>Oenopota</i> sp. ?		G-8
	<i>Oenopota</i> sp. ?		H-11
	<i>Oenopota</i> sp. ?		D-9
	<i>Oenopota</i> sp. ?		G-12
	<i>Oenopota</i> sp. ?		G-12
	<i>Propebela excurvata</i> (Carpenter, 1865)	<i>Bela excurvata</i> ?	H-11
	<i>Nemotoma hokkaidoensis</i> Bartsch, 1941 ?	<i>Nemotoma hokkaidoensis</i>	D-9 H-11
	<i>Odostomia martensi</i> Dall and Bartsch, 1906	<i>Odostomia (Amaura) martensi</i>	G-8
Tectibranchiata	<i>Cylichna nucleola</i> (Reeve, 1855) ¹⁹	<i>Bulla nucleola</i>	D-9 G-8 H-11
ASTEROIDEA	<i>Ctenodiscus crispatus</i> (Retzius, 1805)	<i>Asterias crispata</i>	B-4 B-5 C-4 C-5 D-4
	<i>Pseudarchaster parelii</i> (Düben and Koren, 1844) ?	<i>Astropecten parelii</i>	Z-5
	<i>Ceramaster patagonicus</i> (Sladen, 1889) ?	<i>Pentagonaster patagonicus</i>	Z-5
	<i>Henricia sanguinolenta</i> (Müller, 1776) ?	<i>Asterias sanguinolenta</i>	D-11 E-7 E-8 F-8 F-11 G-7 G-8 H-7 H-8

¹⁹ According to Lemche (1948) *C. nucleola* is synonymous with *Cylichna alba* (Brown).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
ASTEROIDEA--Con.	<i>Pteraster obscura</i> (Perrier, 1891)	<i>Hexaster obscura</i>	C-7 G-13 C-8 H-7 D-5 F-5 F-7 F-8 F-11 G-7 G-8 G-12
	<i>Asterias amurensis</i> Lütken, 1871	<i>Asterias amurensis</i>	See figure 12
	<i>Leptasterias camtschatica</i> (Brandt, 1835) ?	<i>Asterias camtschatica</i>	G-8
	<i>Leptasterias groenlandica</i> (Lütken, 1857) ?	<i>Asteracanthion groenlandicus</i>	F-7 G-7
	<i>Leptasterias polaris</i> (Müller and Troschel, 1842) ?	<i>Asteracanthion polaris</i>	E-5 E-12 F-7 Z-5
	<i>Leptasterias polaris acervata</i> (Stimpson, 1862) ?	<i>Asterias acervata</i>	E-4 F-5 F-6 F-8
	<i>Leptasterias polaris katherinae</i> (Gray, 1840) ?	<i>Asterias katherinae</i>	D-5 E-5 E-6 F-7 G-6 G-7 G-8
	<i>Evasterias echinosoma</i> Fisher, 1926 ?	<i>Evasterias echinosoma</i>	F-14
	<i>Evasterias troschelii</i> (Stimpson, 1862) ?	<i>Asterias troschelii</i>	D-8 G-7 D-9 G-8 E-7 G-14 E-11 G-15 F-6 H-7 F-7 H-9 F-8 H-15 F-13 F-14 G-6

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
OPHIUROIDEA	<i>Ophiura sarsii</i> Lütken, 1854	<i>Ophiura sarsii</i>	A-6 G-6 D-6 G-7 E-6 G-8 E-7 H-14 E-8 F-5 F-6 F-7 F-8 F-10
	<i>Ophiopholis aculeata</i> (Linnaeus, 1767)	<i>Asterias aculeata</i>	C-7 E-6 E-8 F-10 F-11 F-12 F-13 G-11 G-12 G-13
	<i>Gorgonocephalus caryi</i> (Lyman, 1860)	<i>Astrophyton caryi</i>	See figure 13.
ECHINOIDEA	<i>Strongylocentrotus drobachiensis</i> (Müller, 1776) ?	<i>Echinus drobachiensis</i>	A-6 D-10 D-11 E-7 E-8 F-7 G-14 H-12 H-14
ASCIDIACEA	<i>Dendrodoa aggregata</i> (Rathke, 1806)	<i>Ascidia aggregata</i>	G-8 G-12
	<i>Dendrodoa pulchella</i> (Verrill, 1871)	<i>Cynthia pulchella</i>	F-5 F-7 F-8 G-6 G-7 G-8 G-12 H-11 H-15

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
ASCIDIACEA--Con.	<i>Styela coriacea</i> (Alder and Hancock, 1848)	<i>Cynthia coriacea</i>	E-6
			E-11
			F-8
			G-7
			G-9
			G-10
			H-8
			H-14
			H-15
			I-8
	<i>Styela rustica macreteron</i> Ritter, 1913	<i>Styela macreteron</i>	E-11 H-13
			G-7 H-14
			G-8 H-15
			G-9 I-8
			G-11 I-9
			G-12 I-13
			H-8 J-11
			H-9
			H-11
			H-12
	<i>Boltenia ovifera</i> (Linnaeus, 1767)	<i>Vorticelli ovifera</i>	B-6 G-10 H-13
			C-6 G-11 H-14
			F-7 G-12 H-15
			F-8 G-13 I-12
			F-9 G-14 I-13
			F-10 G-15 I-14
			F-11 H-8 J-11
			F-13 H-10 J-13
			G-8 H-11 J-14
			G-9 H-12
	<i>Halocynthia aurantium</i> (Pallas, 1787)	<i>Ascidia aurantium</i>	Z-5
	<i>Molgula retortiformis</i> Verrill, 1871	<i>Molgula retortiformis</i>	G-15
			I-14
	<i>Molgula</i> (1 or 2 species)		G-12
			G-14
			H-13
			H-14
			I-14
			J-11
	<i>Aplidium</i> sp.		G-7
			H-8
			H-15
	<i>Synoicum</i> sp.		G-12
			G-14
			H-15
			I-8
			J-13

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
ASCIDIACEA--Con.	<i>Trididemnum strangulatum</i> (Ritter, 1901)	<i>Didemnum strangulatum</i>	E-8 G-7 H-15
	<i>Trididemnum</i> sp. (possibly <i>T. tenerum</i> ?)		G-7

A-2.--Sources from which information was obtained when original descriptions were not available

Source of information	Species
Pilsbry, 1916	<i>Balanus crenatus</i>
Grant and Gale, 1931	<i>Pododesmus macro schisma</i> <i>Saxidomus giganteus</i> <i>Macoma calcarea</i> <i>Siliqua patula</i> <i>Mya japonica</i> <i>Boreotrophon smithi</i> <i>Thais emarginata</i>
MacGinitie, 1959	<i>Lyonsia norvegica</i> <i>Thyasira flexuosa</i> var. <i>sarsi</i> <i>Serripes grönlandicus</i> <i>Hiatella arctica</i> <i>Boreotrophon clathratus</i> <i>Buccinum angulosum</i> <i>Buccinum undatum</i> var. <i>striatum</i> <i>Oenopota elegans</i> <i>Oenopota (Nodotoma) impressa</i> <i>Oenopota (Obesotoma) tenuilirata</i>
Dall, 1902a	<i>Volutopsius castaneus</i>
Dall, 1921	<i>Acmaea scutum</i>
La Rocque, 1953	<i>Trichotropis kroyeri</i>
Fisher, 1911-1930	<i>Ctenodiscus crispatus</i> <i>Pseudarchaster parelii</i> <i>Leptasterias camtschatica</i>
Clark, 1911	<i>Ophiura sarsii</i> <i>Ophiopholis aculeata</i>
Ritter, 1913	<i>Boltenia ovifera</i>
Van Name, 1945	<i>Dendrodoa aggregata</i> <i>Styela coriacea</i>
Myra Keen	<i>Hiatella striata</i>
(Personal correspondence)	<i>Thais lima</i> <i>Neptunea lyrata</i> <i>Oenopota (Propebelā) rugulata</i> <i>Chlamys rubida</i>

APPENDIX B

Invertebrate catch by stations ¹

Station: A-4
 Range of depth: 69-74 fathoms
 Bottom type: clay and mud
 Range of temp.: 3.6° to 3.8° C.

Coelenterata
 Anemones
 Arthropoda
 Crustacea
 Decapoda
 Pandalus borealis eous
 Paralithodes camtschatica
 Chionoecetes sp.
 Mollusca
 Gastropoda
 Fusitriton oregonensis
 Opisthobranchiata
 Nudibranchs

Station: A-5
 Range of depth: 54-63 fathoms
 Bottom type: mud
 Range of temp.: 3.0° to 4.6° C.

Coelenterata
 Anemones
 Pennatulids
 Annelida
 Polychaeta (tube worms)
 Hirudinidae
 Arthropoda
 Crustacea
 Isopoda
 Decapoda
 Pandalus borealis eous
 Paralithodes camtschatica
 Chionoecetes sp.
 Erimacrus isenbeckii
 Echinodermata
 Asteroidea
 Asterias amurensis
 Ophiuroidea
 Gorgonocephalus caryi

Station: A-6
 Range of depth: 34-37 fathoms
 Bottom type: dark sand
 Range of temp.: 0.9° to 6.6° C.

Porifera
 Coelenterata
 Anemones
 Annelida
 Polychaeta (tube worms)
 Other annelids
 Arthropoda
 Crustacea
 Cirripedia
 Balanus crenatus
 Balanus rostratus apertus
 Decapoda
 Pagurus alaskensis
 Pagurus kennerlyi
 Pagurus tenuimanus
 Paralithodes camtschatica
 Chionoecetes sp.
 Erimacrus isenbeckii
 Cancer oregonensis (juvenile)
 Mollusca
 Pelecypoda
 Cardita crebricostata
 Serripes gronlandicus
 Hiatella sp.
 Gastropoda
 Tachyrhynchus erosum
 Trichotropis cancellata
 Fusitriton oregonensis
 Echinodermata
 Asteroidea
 Asterias amurensis
 Ophiuroidea
 Ophiura sarsii
 Gorgonocephalus caryi
 Echinoidea
 Strongylocentrotus drobachiensis
 Sand dollars
 Chordata
 Ascidiacea
 Tunicates

¹ Temperature ranges for all stations are inclusive of the lows and highs recorded during both 1958 and 1959 king crab cruises.

Invertebrate catch by stations (Continued)

Station: B-4
 Range of depth: 66-68 fathoms
 Bottom type: mud
 Range of temp.: 3.4° to 4.5° C.

Coelenterata
 Anemones
 Annelida
 Polychaeta (tube worms)
 Bryozoa
 Arthropoda
 Crustacea
 Isopoda
 Decapoda
Pandalus borealis eous
Pandalus goniurus
Pagurus aleuticus
Paralithodes camtschatica
Chionoecetes sp.
 Mollusca
 Gastropoda
Neptunea pribiloffensis
 Cephalopoda
 Octopus (juvenile)
 Echinodermata
 Asteroidea
Ctenodiscus crispatus
 Ophiuroidea
Gorgonocephalus caryi

Station: B-5
 Range of depth: 61-63 fathoms
 Bottom type: mud
 Range of temp.: 2.5° to 4.1° C.

Coelenterata
 Anemones
 Arthropoda
 Crustacea
 Isopoda
 Decapoda
Pandalus borealis eous
Paralithodes camtschatica
Chionoecetes sp.
 Echinodermata
 Asteroidea
Ctenodiscus crispatus
 Ophiuroidea
Gorgonocephalus caryi

Station: B-6
 Depth: 57 fathoms
 Bottom type: sandy mud
 Range of temp.: 1.2° to 4.9° C.

Porifera
 Coelenterata
 Hydroids
 Arthropoda
 Crustacea
 Decapoda
Pandalus borealis eous
Pagurus alaskensis
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii
 Echinodermata
 Asteroidea
Asterias amurensis
 Ophiuroidea
Gorgonocephalus caryi
 Chordata
 Ascidiacea
Boltenia ovifera

Station: B-7
 Range of depth: 35-43 fathoms
 Bottom type: sand and gravel
 Range in temp.: 0.6° to 5.1° C.

Porifera
 Coelenterata
 Anemones
 Annelida
 Polychaeta (tube and scale worms)
 Arthropoda
 Crustacea
 Cirripedia
Balanus rostratus apertus
 Decapoda
Pagurus sp.
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Erimacrus isenbeckii
 Mollusca
 Pelecypoda
Modiolus modiolus
 Gastropoda

Invertebrate catch by stations (Continued)

Station: B-7 (cont.)

Fusitriton oregonensis

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Echinoidea

Sand dollars

Holothuroidea

Cucumbers

Station: B-8

Range in depth: 26-30 fathoms

Bottom type: dark sand

Range of temp.: -0.4° to +6.2° C.

Porifera

Coelenterata

Anemones

Arthropoda

Crustacea

Amphipoda

Cirripedia

Balanus rostratus apertus

Decapoda

Crangon dalli

Pagurus sp.

Paralithodes camtschatica

Chionoecetes sp.

Erimacrus isenbeckii

Mollusca

Pelecypoda

Serripes groenlandicus

Macoma brota lipara

Macoma incongrua

Siliqua patula

Spisula voyi

Gastropoda

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiscea

Colonial tunicate of
family Synoicidae

Station: C-4

Range of depth: 64-66 fathoms

Bottom type: mud

Range of temp.: 2.3° to 4.6° C.

Coelenterata

Anemones

Pennatulids

Arthropoda

Crustacea

Decapoda

Pandalus borealis eous

Paralithodes camtschatica

Chionoecetes sp.

Mollusca

Ophistobranchiata

Nudibranchs

Echinodermata

Asteroidea

Ctenodiscus crispatus

Ophiuroidea

Gorgonocephalus caryi

Station: C-5

Range of depth: 59-61 fathoms

Bottom type: mud

Range of temp.: 1.1° to 4.0° C.

Coelenterata

Pennatulids

Arthropoda

Crustacea

Cirripedia

Balanus hesperius

Decapoda

Pandalus borealis eous

Pagurus aleuticus

Pagurus brandti

Paralithodes camtschatica

Chionoecetes sp.

Mollusca

Gastropoda

Fusitriton oregonensis

Boreotrophon clathratus

Buccinum polare

Neptunea lyrata

Opisthobranchiata

Nudibranchs

Echinodermata

Asteroidea

Ctenodiscus crispatus

Ophiuroidea

Gorgonocephalus caryi

Invertebrate catch by stations (Continued)

Station: C-6
Range of depth: 52-56 fathoms
Bottom type: fine gray sand
Range of temp.: 0.9° to 3.5° C.

Porifera
Coelenterata
 Hydroids
 Pennatulids
Annelida
 Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
 Crustacea
 Cirripedia
 Balanus hesperius
 Decapoda
 Pandalus borealis eous
 Crangon dalli
 Pagurus alaskensis
 Pagurus aleuticus
 Pagurus confragosus
 Paralithodes camtschatica
 Chionoecetes sp.
 Erimacrus isenbeckii
 Cancer oregonensis
Mollusca
 Pelecypoda
 Nuculana radiata
 Gastropoda
 Fusitriton oregonensis
 Neptunea lyrata
 Neptunea pribiloffensis
 Opisthobranchiata
 Nudibranchs
Echinodermata
 Ophiuroidea
 Gorgonocephalus caryi
Chordata
 Ascidiacea
 Boltenia ovifera

Station: C-7
Depth: 52 fathoms
Bottom type: muddy sand
Range in temp.: 0.8° to 3.6° C.

Porifera

Coelenterata
 Anemones
Annelida
 Polychaeta (tube worms)
Bryozoa
 Mesenteripora meandrina
Arthropoda
 Crustacea
 Cirripedia
 Balanus hesperius
 Decapoda
 Pandalus borealis eous
 Crangon communis
 Crangon dalli
 Pagurus brandti
 Paralithodes camtschatica
 Chionoecetes sp.
 Erimacrus isenbeckii
Mollusca
 Pelecypoda
 Serripes grönlandicus
 Spisula voyi
 Gastropoda
 Fusitriton oregonensis
 Neptunea lyrata
Cephalopoda
 Octopus
Echinodermata
 Asteroidea
 Pteraster obscura
 Asterias amurensis
 Ophiuroidea
 Ophiopholis aculeata
 Gorgonocephalus caryi
 Holothuroidea
 Cucumbers

Station: C-8
Range in depth: 43-48 fathoms
Bottom type: dark sand
Range in temp.: 0.7° to 4.8° C.

Porifera
Annelida
 Polychaeta (scale and tube worms)
 Serpula vermicularis
Arthropoda
 Crustacea

Invertebrate catch by stations (Continued)

Station: C-8 (cont.)

Decapoda
Pandalus borealis eous
Crangon dalli
Pagurus confragosus
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Cancer oregonensis

Mollusca
 Gastropoda
Fusitriton oregonensis
Boreotrophon clathratus
Neptunea lyrata
Leucosyrinx circinata

Echinodermata
 Asteroidea
Pteraster obscura
Asterias amurensis

Station: C-9

Range of depth: 27-30 fathoms
 Bottom type: dark sand
 Range of temp.: -0.3° to +6.4° C.

Porifera
 Annelida
 Polychaeta (scale worms).

Arthropoda
 Crustacea
 Amphipoda
 Decapoda
Pandalus goniurus
Crangon dalli
Pagurus sp.
Pagurus tenuimanus
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas lyratus
Erimacrus isenbeckii

Mollusca
 Pelecypoda
Cardita crebricostata
Serripes grönlandicus
Macoma brota lipara
Macoma incongrua

Gastropoda
Buccinum angulosum var. *transliratum*

Neptunea lyrata

Echinodermata
 Asteroidea
Asterias amurensis
 Ophiuroidea
Gorgonocephalus caryi
 Holothuroidea
 Cucumbers

Chordata
 Ascidiacea
 Colonial tunicate of family
 Synoicidae

Station: D-4

Range of depth: 55-63 fathoms
 Bottom type: mud
 Range of temp.: 1.5° to 3.4° C.

Coelenterata
 Anemones
 Pennatulids

Annelida
 Arthropoda
 Crustacea
 Cirripedia
Balanus hesperius

Decapoda
Pandalus borealis eous
Pandalus goniurus
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus

Mollusca
 Gastropoda
Neptunea lyrata
 Opisthobranchiata
 Nudibranchs
 Cephalopoda
 Octopus (juvenile)

Echinodermata
 Asteroidea
Ctenodiscus crispatus
 Ophiuroidea
Gorgonocephalus caryi

Station: D-5

Range of depth: 53-54 fathoms
 Bottom type: mud

Invertebrate catch by stations (Continued)

Station: D-5 (cont.)
Range of temp.: 1.2° to 2.5° C.

Porifera
Coelenterata
Hydroids
Pennatulids
Annelida
Polychaeta (tube worms)
Serpula vermicularis
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pagurus alaskensis
Pagurus aleuticus
Pagurus cavimanus
Pagurus confragosus
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Cancer sp.

Mollusca
Pelecypoda
Modiolus modiolus
Macoma moesta
Gastropoda
Fusitriton oregonensis
Neptunea lyrata
Neptunea pribiloffensis

Echinodermata
Asteroidea
Leptasterias polaris katherinae ?
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers

Station: D-6
Depth: 51 fathoms
Bottom type: sandy mud
Range of temp.: 1.1° to 2.6° C.

Porifera
Coelenterata
Hydroids

Pennatulids
Annelida
Polychaeta (scale worms)
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pagurus alaskensis
Pagurus confragosus
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii

Mollusca
Pelecypoda
Nucula bellotii
Gastropoda
Tachyrhynchus erosum
Mohnia sp. (perhaps *M. robusta*
or *M. frielei*)
Neptunea lyrata

Echinodermata
Asteroidea
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Holothuroidea
Cucumbers

Station: D-7
Range of depth: 49-50 fathoms
Bottom type: muddy sand
Range of temp.: 0.6° to 2.8° C.

Porifera
Coelenterata
Hydroids
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Cirripedia
Balanus hesperius

Invertebrate catch by stations (Continued)

Station: D-7 (cont.)

Decapoda

Pandalus borealis eous
Pandalus goniurus
Crangon communis
Argis dentata
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca

Gastropoda

Fusitriton oregonensis
Mohnia sp. ? (probably)
Neptunea lyrata

Echinodermata

Asteroidea

Ophiuroidea

Brittle stars
Gorgonocephalus caryi

Holothuroidea

Cucumbers

Station: D-8
 Range of depth: 48-49 fathoms
 Bottom type: dark sand
 Range of temp.: 0.9° to 2.6°C.

Porifera

Coelenterata

Hydroids

Annelida

Polychaeta (scale worms)

Bryozoa

Mesenteripora meandrina

Arthropoda

Crustacea

Cirripedia

Balanus hesperius

Decapoda

Pandalus borealis eous
Pagurus alaskensis
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii

Mollusca

Gastropoda

Fusitriton oregonensis
Colus spitzbergensis
Neptunea lyrata

Echinodermata

Asteroidea

Evasterias troschelii ?

Ophiuroidea

Gorgonocephalus caryi

Holothuroidea

Cucumbers

Station: D-9 *
 Range of depth: 43-44 fathoms
 Bottom type: coarse sand
 Range of temp.: 0.1° to 3.7° C.

Porifera

Coelenterata

Hydroids

Annelida

Polychaeta (scale worms)

Bryozoa

Arthropoda

Crustacea

Amphipoda

Cirripedia

Balanus hesperius
Balanus crenatus
Balanus rostratus apertus

Decapoda

Crangon dalli
Pagurus brandti
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii

Mollusca

Pelecypoda

Nucula bellotii
Yoldia seminuda
Yoldia scissurata
Musculus niger
Lyonsia sp.
Astarte alaskensis
Cardita crebricostata
Diplodonta orbella
Clinocardium ciliatum

* Station at which both otter trawl and dredge used.

Invertebrate catch by stations (Continued)

Station: D-9 (cont.)
Serripes grönlandicus
Tellina lutea
Macoma calcarea
Macoma incongrua
Macoma moesta
Siliqua alta
Gastropoda
Margaritopsis grosvernori
Solariella obscura
Tachyrhynchus erosum
Natica clausa
Polinices sp.
Beringius sp. possibly *B. stimpsoni*
(juvenile)
Mohnia sp. ?
Neptunea lyrata
Oenopota elegans
Oenopota harpa
Oenopota krausei (possibly)
Oenopota kyskana ?
Oenopota quadra ?
Oenopota tenuilirata cymata
Oenopota sp. ?
Nemotoma hokkaidoensis
Opisthobranchiata
Cylichna nucleola
Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Brittle stars
Holothuroidea
Cucumbers

Station: D-10 *
Range of depth: 35-36 fathoms
Bottom type: fine sandy mud
Range of temp.: -0.1° to +4.1° C.

Porifera
Coelenterata
Anemones
Annelida
Polychaeta (tube worms)
Arthropoda
Crustacea

Cirripedia
Balanus hesperius
Balanus crenatus
Decapoda
Crangon dalli
Pagurus alaskensis
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas lyratus
Erimacrus isenbeckii

Mollusca
Pelecypoda
Yoldia myalis
Cardita crebricostata
Serripes grönlandicus
Tellina lutea
Spisula voyi
Mya pseudoarenaria
Hiatella sp.
Gastropoda
Polinices pallidus
Neptunea heros
Neptunea lyrata

Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis ?
Sand dollars
Holothuroidea
Cucumbers

Station: D-11
Range of depth: 16-20 fathoms
Bottom type: Unknown
Range of temp.: 3.4° to 8.7° C.

Porifera
Coelenterata
Anemones
Annelida
Polychaeta (scale worms)

* Station at which both otter trawl and dredge used

Invertebrate catch by stations (Continued)

Station: D-11 (cont.)

Arthropoda

Crustacea

Cirripedia

Balanus rostratus apertus

Balanus balanus balanus

Decapoda

Crangon dalli

Pagurus alaskensis

Pagurus brandti

Pagurus tenuimanus

Paralithodes camtschatica

Chionoecetes sp.

Hyas lyratus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Modiolus modiolus

Spisula voyi

Hiatella arctica

Hiatella striata

Gastropoda

Lepeta concentrica ?

Cryptonatica aleutica

Polinices pallidus

Velutina velutina

Buccinum polare

Beringius undatus

Colus jordani

Echinodermata

Asteroidea

Henricia sanguinolenta ?

Asterias amurensis

Echinoidea

Strongylocentrotus drobachiensis ?

Chordata

Ascidiacea

Boltenia ovifera

Station: E-4

Range of depth: 51-53 fathoms

Bottom type: mud

Range of temp.: 1.2° to 2.8° C.

Porifera

Coelenterata

Hydroids

Anemones

Arthropoda

Crustacea

Decapoda

Pandalus borealis eous

Pagurus sp.

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Mollusca

Pelecypoda

Macoma calcarea

Gastropoda

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Leptasterias polaris acervata ?

Ophiuroidea

Brittle stars

Gorgonocephalus caryi

Chordata

Ascidiacea

Colonial tunicates of family

Synoiidae

Station:

E-5

Range of depth:

49-53 fathoms

Bottom type:

mud

Range of temp.:

0.3° to 2.1° C.

Porifera

Coelenterata

Hydroids

Aneomones

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale and tube worms)

Hirudinidae

Bryozoa

Mesenteripora meandrina

Arthropoda

Crustacea

Cirripedia

Balanus hesperius

Rhizocephalans

Decapoda

Pandalus borealis eous

Argis dentata

Pagurus aleuticus

Invertebrate catch by stations (Continued)

Station: E-5 (cont.)

Pagurus brandti
Pagurus confragosus
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus

Mollusca

Pelecypoda

Nuculana radiata
Clinocardium ciliatum

Gastropoda

Mohnia sp. ? (probably)
Ancistrolepis magnus
Neptunea lyrata
Neptunea pribiloffensis

Echinodermata

Asteroidea

Asterias amurensis
Leptasterias polaris katherinea ?

Ophiuroidea

Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidacea

Colonial tunicates of family
 Synoicidae

Station: E-6

Range of depth: 47-50 fathoms

Bottom type: muddy sand

Range of temp.: 0.5° to 2.4° C.

Coelenterata

Hydroids

Anemones

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale and tube worms)

Hirudinidae

Bryozoa

Mesenteripora meandrina

Arthropoda

Crustacea

Cirripedia

Balanus hesperius

Decapoda

Pandalus borealis eous

Pagurus aleuticus

Pagurus brandti

Pagurus confragosus

Pagurus sp.

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Hyas lyratus

Mollusca

Pelecypoda

Serripes grönlanicus

Hiatella striata

Gastropoda

Fusitriton oregonensis

Colus spitzbergensis

Neptunea heros

Neptunea lyrata

Echinodermata

Asteroidea

Leptasterias polaris katherinea ?

Ophiuroidea

Ophiopholis aculeata

Ophiura sarsii

Gorgonocephalus caryi

Echinoidea

Sand dollars

Holothuroidea

Cucumbers

Chordata

Ascidacea

Styela coriacea

Station: E-7

Range of depth: 46-48 fathoms

Bottom type: sandy mud

Range of temp.: 0.6° to 2.6° C.

Porifera

Coelenterata

Hydroids

Anemones

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale and tube worms)

Bryozoa

Mesenteripora meandrina

Arthropoda

Invertebrate catch by stations (Continued)

Station:	E-7 (cont.)
Crustacea	
Cirripedia	
<i>Balanus hesperius</i>	
Decapoda	
<i>Pandalus borealis eous</i>	
<i>Crangon communis</i>	
<i>Crangon dalli</i>	
<i>Argis dentata</i>	
<i>Pagurus brandti</i>	
<i>Pagurus kennerlyi</i>	
<i>Pagurus</i> sp.	
<i>Paralithodes camtschatica</i>	
<i>Chionoecetes</i> sp.	
<i>Hyas coarctatus alutaceus</i>	
<i>Hyas lyratus</i>	
Mollusca	
Pelecypoda	
<i>Nuculana radiata</i>	
<i>Pododesmus macroschisma</i>	
<i>Serripes grönlandicus</i>	
Gastropoda	
<i>Boreotrophon clathratus</i>	
<i>Buccinum glaciale</i>	
<i>Neptunea lyrata</i>	
Cephalopoda	
Octopus	
Echinodermata	
Asteroidea	
<i>Henricia sanguinolenta</i> ?	
<i>Asterias amurensis</i>	
<i>Evasterias troschelii</i> ?	
Ophiuroidea	
<i>Ophiura sarsii</i>	
<i>Gorgonocephalus caryi</i>	
Echinoidea	
<i>Strongylocentrotus drobachiensis</i> ?	
Holothuroidea	
Cucumbers	

Station:	E-8
Range of depth:	45-47 fathoms
Bottom type:	sandy mud
Range of temp.:	0.5° to 2.6° C.

Porifera
Coelenterata
 Hydroids
 Anemones

Alcyonacea	
<i>Gersemia rubrifomis</i>	
Annelida	
Hirudiniæ	
Bryozoa	
<i>Mesenteripora meandrina</i>	
Arthropoda	
Crustacea	
Cirripedia	
<i>Balanus evermanni</i>	
<i>Balanus hesperius</i>	
Decapoda	
<i>Pandalus borealis eous</i>	
<i>Pandalus goniurus</i>	
<i>Crangon communis</i>	
<i>Pagurus brandti</i>	
<i>Paralithodes camtschatica</i>	
<i>Chionoecetes</i> sp.	
<i>Hyas coarctatus alutaceus</i>	
<i>Hyas lyratus</i>	
Mollusca	
Pelecypoda	
<i>Chlamys islandica</i>	
<i>Pododesmus macroschisma</i>	
<i>Modiolus modiolus</i>	
<i>Macoma brota lipara</i>	
<i>Macoma calcarea</i>	
<i>Macoma incongrua</i>	
<i>Hiatella arctica</i>	
<i>Hiatella striata</i>	
Gastropoda	
<i>Crepidula grandis</i>	
<i>Fusitriton oregonensis</i>	
<i>Boreotrophon clathratus</i>	
<i>Colus barbarinus</i> ?	
<i>Colus jordani</i>	
<i>Colus spitzbergensis</i>	
<i>Colus</i> sp.	
<i>Neptunea lyrata</i>	
Echinodermata	
Asteroidea	
<i>Henricia sanguinolenta</i> ?	
<i>Asterias amurensis</i>	
Ophiuroidea	
<i>Ophiopholis aculeata</i>	
<i>Ophiura sarsii</i>	
<i>Gorgonocephalus caryi</i>	
Echinoidea	
<i>Strongylocentrotus drobachiensis</i>	
Holothuroidea	

Invertebrate catch by stations (Continued)

Station: E-8 (cont.)

Cucumbers
Chordata
Asciadiacea
Trididemnum strangulatum

Station: E-9
Range of depth: 42-44 fathoms
Bottom type: fine gray sand
Range of temp.: 0.6° to 3.7° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pagurus alaskensis
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca
Gastropoda
Tachyrhynchus erosum
Cerithiopsis stejnegeri
Boreotrophon clathratus
Neptunea heros
Neptunea lyratus

Echinodermata
Asteroidea
Ophiuroidea
Brittle stars
Holothuroidea
Cucumbers

Station: E-10
Range of depth: 40-48 fathoms
Bottom type: fine sandy mud

Range of depth: 0.2° to 3.9° C.

Porifera
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Cirripedia
Balanus rostratus apertus
Decapoda
Pandalus borealis eous
Crangon dalli
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Cancer oregonensis (juvenile)

Mollusca
Pelecypoda
Mytilus edulis
Cardita crebricostata
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Ophiuroidea
Brittle stars
Gorgonocephalus caryi
Holothuroidea

Cucumbers
Chordata
Asciadiacea
Colonial tunicate of family
Synoicidae

Station: E-11
Range of depth: 33-35 fathoms
Bottom type: dark, coarse sand
Range of temp.: 0.1° to 5.1° C.

Porifera
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus rostratus apertus
Decapoda

Invertebrate catch by stations (Continued)

Station: E-11 (Cont.)

Pandalus borealis eous
Crangon dalli
Pagurus alaskensis
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Cancer oregonensis (juveniles)

Mollusca

Pelecypoda

Yoldia myalis
Cardita crebricostata
Macoma brota lipara
Macoma incongrua
Spisula voyi

Gastropoda

Cerithiopsis stejnegeri
Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis
Evasterias troschelii ?

Ophiuroidea

Brittle stars
Gorgonocephalus caryi

Echinoidea

Sand dollars

Holothuroidea

Cucumbers

Chordata

Ascidiacea

Styela coriacea
Styela rustica macreteron
Boltenia ovifera

Station: E-12 *
 Range of depth: 26-28 fathoms
 Bottom type: dark sand
 Range of temp.: -0.4° to +6.1°C.

Porifera

Coelenterata

Hydroids
 Alcyonacea

Gersemia rubrifomis

Annelida

Polychaeta (tube and scale worms)

Bryozoa

Mesenteripora meandrina

Anthropoda

Crustacea

Amphipoda

Cirripedia

Balanus crenatus
Balanus hesperius
Balanus rostratus apertus

Decapoda

Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Pagurus splendescens
Pagurus tenuimanus
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca

Pelecypoda

Yoldia myalis
Limopsis akutanica
Chlamya behringiana
Pododesmus macsoachisma
Mytilis edulis
Serripes grönlandicus
Tellina lutea
Siliqua alta
Siliqua media
Spisula voyi
Hiatella striata

Gastropoda

Cryptonatica aleutica
Fusitriton oregonensis
Buccinum angulosum transliratum
Buccinum plectrum
Beringius kennicotti
Colus of. *C. herendeeni*
Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

* Station at which both otter trawl and dredge used :

Invertebrate catch by stations (Continued)

Station: E-12 (Cont.)

Leptasterias polaris ?

Ophiuroidea

Brittle stars

Gorgonocephalus caryi

Chordata

Ascidiacea

Colonial tunicate of family

Synoiidae

Station:

F-5

Depth:

42 fathoms

Bottom type:

Unknown

Temp.:

1.9° C.

Porifera

Coelenterata

Hydroids

Annelida

Polychaeta (scale and tube worms)

Bryozoa

Mesenteripora meandrina

Arthropoda

Crustacea

Cirripedia

Balanus hesperius

Decapoda

Pandalus borealis eous

Pandalus goniurus

Argis dentata

Pagurus brandti

Chionoecetes sp.

Mollusca

Pelecypoda

Yoldia sp.

Clinocardium ciliatum

Serripes grönlandicus

Gastropoda

Crepidula grandis

Buccinum polare

Ancistrolepis magnus

Neptunea lyrata

Volutopsis fragilis

Echinodermata

Asteroidea

Pteraster obscura

Leptasterias polaris acervata ?

Ophiuroidea

Ophiura sarsii

Gorgonocephalus caryi

Holothuroidea

Cucumber

Chordata

Ascidiacea

Dendrodoa pulchella

Station:

F-6

Range of depth:

39-41 fathoms

Bottom type:

Unknown

Range of temp.:

2.7° to 2.9° C.

Coelenterata

Hydroids

Anemones

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale and tube worms)

Bryozoa

Mesenteripora meandrina

Arthropoda

Crustacea

Amphipoda

Cirripedia

Balanus hesperius

Decapoda

Pandalus borealis eous

Crangon dalli

Argis dentata

Pagurus brandti

Pagurus splendescens

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Mollusca

Pelecypoda

Serripes grönlandicus

Tellina lutea

Gastropoda

Polinices pallidus

Buccinum polare

Buccinum tenue

Buccinum undatum var. *striatum*

Pyrulofusus deformis

Colus spitzbergensis

Neptunea lyrata

Invertebrate catch by stations (Continued)

Station: F-6 (Cont.)

Echinodermata

Asteroidea

Leptasterias polaris acervata ?

Evasterias troschelii ?

Ophiuroidea

Ophiura sarsii

Gorgonocephalus caryi

Chordata

Ascidacea

Colonial tunicates of
family Synoicidae

Station: F-7

Range of depth: 40-42 fathoms

Bottom type: fine grey sand

Range of temp.: -1.4° to +2.8° C.

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale worms)

Hirudinidae

Bryozoa

Mesenteripora meandrina

Other bryozoans

Anthropoda

Crustacea

Cirripedia

Balanus hesperius

Decapoda

Crangon dalli

Argis dentata

Pagurus aleuticus

Pagurus brandti

Pagurus splendescens

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Mollusca

Pelecypoda

Clinocardium ciliatum

Serripes groenlandicus

Hiatella sp.

Gastropoda

Crepidula grandis

Polinices pallidus

Fusitriton oregonensis

Buccinum polare

Buccinum tenue

Buccinum undatum var. *striatum*

Pyrulofusus deformis

Colus spitzbergensis

Neptunea heros

Neptunea lyrata

Neptunea pribiloffensis

Volutopsis fragilis

Leucosyrinx circinata

Echinodermata

Asteroidea

Pteraster obscura

Asterias amurensis

Leptasterias groenlandica ?

Leptasterias polaris ?

Leptasterias polaris katherinea ?

Evasterias troschelii ?

Ophiuroidea

Ophiura sarsii

Gorgonocephalus caryi

Echinoidea

Strongylocentrotus drobachiensis ?

Holothuroidea

Cucumbers

Chordata

Ascidacea

Dendrodoa pulchella

Boltenia ovifera

Station: F-8

Range of depth: 39-42 fathoms

Bottom type: sandy mud

Range of temp.: -0.7° to +2.8° C.

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale and tube worms)

Bryozoa

Mesenteripora meandrina

Other bryozoans

Arthropoda

Crustacea

Amphipoda

Decapoda

Invertebrate catch by stations (Continued)

Station: F-8 (Cont.)

Pandalus borealis eous
Crangon dalli
Argis dentata
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii

Mollusca

Pelecypoda

Nuculana radiata
Thyasira flexuosa var. *sarsi*
Clinocardium ciliatum
Hiatella sp.

Gastropoda

Tachyrhynchus erosum
Mohnia sp.
Neptunea heros
Neptunea lyrata

Echinodermata

Asteroidea

Henricia sanguinolenta ?
Asterias amurensis
Leptasterias polaris acervata ?
Evasterias troschelii ?

Ophiuroidea

Ophiura sarsii
Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidiacea

Dendrodoa pulcheilla
Styela coriacea
Boltenia ovifera
 Colonial tunicates of family
 Synoicidae

Station:

F-9

Range of Depth: 38-42 fathoms

Bottom type: Sand

Range of temp.: -0.4° to +3.1° C.

Coelenterata

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (tube and scale worms)

Bryozoa

Arthropoda

Crustacea

Decapoda

Pandalus borealis eous
Crangon dalli
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii

Mollusca

Gastropoda

Crepidula grandis
Neptunea heros
Neptunea lyrata
Neptunea pribiloffensis
Plicifusus kroyeri

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiacea

Boltenia ovifera
 Colonial tunicate of family
 Synoicidae

Station:

F-10

Range of depth: ~ 38-41 fathoms

Bottom type: sand

Range of temp.: -0.6° to +3.6° C.

Porifera

Annelida

Polychaeta (tube and scale worms)

Bryozoa

Arthropoda

Crustacea

Decapoda

Pandalus borealis eous
Pagurus brandti
Paralithodes camtschatica
Oregonia gracilis

Invertebrate catch by stations (Continued)

Station: F-10 (Cont.)

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca .

Gastropoda

Mohnia sp. (Perhaps *M. robusta* or
M. frielei)

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Ophiopholis aculeata

Ophiura sarsii

Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidacea

Boltenia ovifera

Station: F-11*

Range of depth: 47-48 fathoms

Bottom type: muddy sand

Range of temp.: -0.9° to +3.8° C.

Porifera

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Arthropoda

Crustacea

Amphipoda

Isopoda

Cirripedia

Balanus hesperius

Balanus crenatus

Balanus rostratus apertus

Balanus balanus balanus

Decapoda

Pandalus borealis eous

Pagurus alaskensis

Pagurus aleuticus

Pagurus brandti

Pagurus tenuimanus

Paralithodes camtschatica

Oregonia gracilis

Chionoecetes sp.

Hyas coarctatus alutaceus

Hyas lyratus

Erimacrus isenbeckii

Cancer oregonensis (juveniles)

Mollusca

Pelecypoda

Nucula bellotii

Yoldia myalis

Astarte montagui (probably)

Cardita crebricostata

Diplodonta aleutica

Tellina lutea

Macoma planiuscula

Spisula voyi

Gastropoda

Solariella obscura

Tachyrhynchus erosum

Crepidula grandis

Polinices nanus

Fusitriton oregonensis

Neptunea lyrata

Plicifusus brunneus

Admete couthouyi

Oenopota (Turritomella) sp.

Echinodermata

Asteroidea

Henricia sanguinolenta ?

Pteraster obscura

Asterias amurensis

Ophiuroidea

Ophiopholis aculeata

Holothuroidea

Cucumbers

Chordata

Ascidacea

Boltenia ovifera

Colonial tunicates of family

Synoiidae

Station: F-12

Range of depth: 37-38 fathoms

Bottom type: dark sand

Range of temp.: -0.8° to +4.3° C.

* Dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: F-12 (Cont.)
 Porifera
 Coelenterata
 Hydroids
 Alcyonacea
 Gersemia rubiformis
 Annelida
 Polychaeta (tube and scale worms)
 Bryozoa
 Arthropoda
 Crustacea
 Decapoda
 Pandalus goniurus
 Crangon dalli
 Pagurus alaskensis
 Paralithodes camtschatica
 Oregonia gracilis
 Chionoecetes sp.
 Hyas coarctatus alutaceus
 Hyas lyratus
 Erimacrus isenbeckii
 Cancer oregonensis (juveniles)
 Mollusca
 Pelecypoda
 Spisula voyi
 Hiatella striata
 Gastropoda
 Crepidula grandis
 Fusitriton oregonensis
 Neptunea lyrata
 Echinodermata
 Ophiuroidea
 Ophiopholis aculeata
 Gorgonocephalus caryi
 Holothuroidea
 Cucumbers
 Psolus sp.
 Chordata
 Ascidiacea
 Colonial tunicates of family
 Synoicidae

Station: F-13
 Range of depth: 32-33 fathoms
 Bottom type: Unknown
 Range of temp.: 2.5° to 4.7° C.

Coelenterata
 Hydroids

Alcyonacea
 Gersemia rubiformis
 Annelida
 Polychaeta (tube and scale worms)
 Bryozoa
 Arthropoda
 Crustacea
 Cirripedia
 Balanus balanus balanus
 Balanus crenatus
 Balanus hesperius
 Balanus rostratus apertus
 Decapoda
 Pandalus goniurus
 Crangon dalli
 Pagurus alaskensis
 Pagurus kennerlyi
 Pagurus sp.
 Pagurus tenuimanus
 Paralithodes camtschatica
 Oregonia gracilis
 Chionoecetes sp.
 Hyas coarctatus alutaceus
 Hyas lyratus
 Erimacrus isenbeckii
 Mollusca
 Pelecypoda
 Serripes grönlandicus
 Spisula voyi
 Hiatella striata
 Gastropoda
 Crepidula grandis
 Fusitriton oregonensis
 Colus spitzbergensis
 Neptunea lyrata
 Neptunea pribiloffensis
 Echinodermata
 Asteroidea
 Asterias amurensis
 Evasterias troschelii ?
 Ophiuroidea
 Ophiopholis aculeata
 Gorgonocephalus caryi
 Holothuroidea
 Cucumbers
 Chordata
 Ascidiacea
 Boltenia ovifera
 Colonial tunicate of family
 Synoicidae

Invertebrate catch by stations (Continued)

Station: F-14
Depth: 21 fathoms
Bottom type: Unknown
Temp.: 2.6° C.

Porifera
Coelenterata
 Alcyonacea
 Gersemia rubiformis
Annelida
 Polychaeta (tube worms)
Arthropoda
 Crustacea
 Cirripedia
 Balanus hesperius
 Balanus rostratus apertus
 Decapoda
 Pagurus alaskensis
 Paralithodes camtschatica
 Chionoecetes sp.
 Hyas coarctatus alutaceus
 Erimacrus isenbeckii
Mollusca
 Gastropoda
 Aquilonaria turneri
 Neptunea lyrata
Echinodermata
 Asteroidea
 Asterias amurensis
 Evasterias echinosoma ?
 Evasterias troschelii ?
 Ophiuroidea
 Gorgonocephalus caryi
 Holothuroidea
 Cucumbers
Chordata
 Ascidiacea
 Colonial tunicates of family
 Synoicidae

Station: G-6
Depth: 38 fathoms
Bottom type: Unknown
Temp.: 2.5° C.

Coelenterata
 Hydroids
 Alcyonacea
 Gersemia rubriformis

Annelida
 Polychaeta (tube and scale worms)
Bryozoa
 Porella saccata ?
Arthropoda
 Crustacea
 Amphipoda
 Cirripedia
 Balanus hesperius
 Decapoda
 Pandalus borealis eous
 Pagurus brandti
 Chionoecetes sp.
 Hyas coarctatus alutaceus
 Erimacrus isenbeckii

Mollusca
 Pelecypoda
 Musculus discors laevigatus
 forma substriata
 Clinocardium ciliatum
 Serripes grönlandicus
 Gastropoda
 Buccinum angulosum
 Buccinum polare
 Buccinum tenue
 Neptunea lyrata
 Volutopsius fragilis
 Opisthobranchiata
 Nudibranchs

Echinodermata
 Asteroidea
 Asterias amurensis
 Leptasterias polaris katherinea ?
 Evasterias troschelii ?

Ophiuroidea
 Ophiura sarsii
 Gorgonocephalus caryi

Holothuroidea
 Cucumbers

Chordata
 Ascidiacea
 Dendrodoa pulchella

Station: G-7
Range of depth: 36-37 fathoms
Bottom type: Unknown
Range of temp.: 2.9° to 3.0° C.

Coelenterata

Invertebrate catch by stations (Continued)

Station: G-7 (Cont.)

Hydroids
Alcyonacea
Gersemia rubriformis

Annelida
Polychaeta (scale worms)

Bryozoa

Arthropoda

Crustacea

Cirripedia
Balanus hesperius

Decapoda
Pandalus borealis eous

Crangon dalli
Argis dentata
Pagurus brandti
Pagurus kennerlyi
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus

Mollusca

Pelecypoda
Musculus discors laevigatus
forma substriata
Clinocardium ciliatum
Serripes grönlandicus

Gastropoda

Boreotrophon dalli
Buccinum angulosum
Buccinum polare
Buccinum tenue
Volutharpa perryi
Neptunea heros
Neptunea lyrata
Volutopsius fragilis

Echinodermata

Asteroidea
Henricia sanguinolenta ?
Pteraster obscura
Leptasterias groenlandica ?
Leptasterias polaris katherinea ?
Evasterias troschelii ?

Ophiuroidea

Ophiura sarsii
Gorgonocephalus caryi

Holothuroidea

Cucumbers

Ascidacea

Dendrodoa pulchella

Styela coriacea
Styela rustica macreenterom
Aplidium sp.
Trididemnum strangulatum
Trididemnum sp. (possibly *T. tenerum* ?)
Colonial tunicates of family
Synoicidae

Station: G-8*
Range of depth: 35-36 fathoms
Bottom type: sandy mud
Range of temp.: 2.4° to 2.9° C.

Foraminifera

Porifera

Coelenterata

Hydroids
Alcyonacea
Gersemia rubriformis

Annelida

Polychaeta (tube, scale, and
grub-type worms)

Hirudinidea

Bryozoa

Fasciculiporoides americana ?
Porella saccata ?

Arthropoda

Crustacea

Amphipoda

Cumacea

Isopoda

Cirripedia

Balanus hesperius

Decapoda

Pandalus borealis eous
Pandalus goniurus
Argis dentata
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Cancer oregonensis (juveniles) .

Mollusca

Pelecypoda

Nucula bellotii

Nuculana radiata .

* Dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: G-8 (Cont.)

Yoldia myalis
Musculus discors laevigatus
forma substriata
Lyonsia norvegica
Clinocardium ciliatum
Serripes grönlandicus
Liocyma beckii

Gastropoda

Tachyrhynchus erosum
Crepidula grandis
Trichotropis coronata
Trichotropis kroyeri
Trichotropis sp. (possibly)
Natica clausa
Boreotrophon clathratus
Boreotrophon dalli
Boreotrophon cf. *B. smithi*
Buccinum angulosum
Buccinum plectrum
Buccinum polare
Buccinum orotundum
Pyrulofusus deformis
Colus halli
Colus cf. *C. trophius*
Neptunea heros
Neptunea lyrata
Volutopsius castaneus
Volutopsius middendorffi (possibly)
Admete couthouyi middendorffiana
Oenopota (Nodotoma) impressa
Oenopota (Obesotoma) tenuilirata
Oenopota sp. ?
Odostomia martensi
 Opisthobranchiata
Cylichna nucleola

Echinodermata

Asteroidea

Henricia sanguinolenta ?
Pteraster obscura
Asterias amurensis
Leptasterias camtschatica ?
Leptasterias polaris katherinea ?
Evasterias troschelii ?

Ophiuroidea

Ophiura sarsii
Gorgonocephalus caryi

Echinoidea

Sand dollars

Chordata

Ascidiacea

Dendrodoa aggregata
Dendrodoa pulchella
Styela rustica macrenteron
Boltenia ovifera
 Colonial tunicates of family
 Synoicidae

Station:

G-9

Range of depth:

33 fathoms

Bottom type:

Unknown

Range of temp.:

2.7° to 3.4° C.

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (tube and scale worms)

Bryozoa

Arthropoda

Crustacea

Isopoda

Cirripedia

Balanus balanus balanus
Balanus hesperius

Decapoda

Pandalus borealis eous
Crangon dalli
Pagurus brandti
Pagurus kennerlyi
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii

Mollusca

Pelecypoda

Yoldia myalis
Macoma calcarea

Gastropoda

Neptunea heros
Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiacea

Styela coriacea

Invertebrate catch by stations (Continued)

Station: G-9 (Cont.)

Styela rustica macrenteron

Boltenia ovifera

Trididemnum strangulatum

Colonial tunicate of family

Synoiidae

Station: G-10

Range of depth: 33-36 fathoms

Bottom type: coarse sand

Range of temp.: -0.9° to +3.8° C.

Porifera

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (tube and scale worms)

Spirorbis sp.

Bryozoa

Mesenteripora meandrina

Arthropoda

Crustacea

Cirripedia

Balanus balan *balanus*

Decapoda

Pandalus goniurus

Crangon dalli

Pagurus sp.

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Spisula voyi

Gastropoda

Tachyrhynchus erosum

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiacea

Styela coriacea

Boltenia ovifera

Colonial tunicate of family

Synoiidae

Station: G-11

Range of depth: 36-38 fathoms

Bottom type: coarse sand

Range of temp.: -0.8° to +3.8° C.

Porifera

Colenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (tube and scale worms)

Bryozoa

Arthropoda

Crustacea

Isopoda

Decapoda

Crangon dalli

Pagurus alaskensis

Paralithodes camtschatica

Oregonia gracilis

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Yoldia myalis

Gastropoda

Cerithiopsis stejnegeri

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Ophiopholis aculeata

Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidiacea

Styela rustica macrenteron

Boltenia ovifera

Station: G-12*

Range of depth: 34-37 fathoms

* Dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: G-12 (cont.) *
 Bottom type: muddy sand
 Range of temp.: -0.8° to +4.0° C.

Porifera

Coelenterata

Hydroids

Annelida

Polychaeta (tube and scale worms)

Bryozoa

Arthropoda

Crustacea

Amphipoda

Isopoda

Cirripedia

Balanus balanus balanus

Balanus hesperius

Balanus rostratus apertus

Decapoda

Pandalus borealis eous

Eualus sp.

Crangon communis

Crangon dalli

Pagurus alaskensis

Pagurus brandti

Pagurus sp.

Pagurus sp.

Paralithodes camtschatica

Oregonia gracilis

Chionoecetes sp.

Hyas coarctatus alutaceus

Hyas lyratus

Erimacrus isenbeckii

Cancer oregonensis (juveniles)

Mollusca

Pelecypoda

Nucula bellotii

Astarte montagui (probably)

Cardita crebricostata

Macoma brota

Macoma calcarea

Spisula voyi

Hiatella arctica

Gastropoda

Solariella obscura

Polinices nanus

Cerithiopsis stejnegeri

Velutina velutina

Buccinum sp. (possibly)

Neptunea heros

Neptunea lyrata

Oenopota harpa

Oenopota (Turritomella) sp.

Oenopota sp. ?

Oenopota sp. ?

Echinodermata

Asteroidea

Pteraster obscura

Ophiuroidea

Ophiopholis aculeata

Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidiacea

Dendrodoa aggregata

Styela rustica macren

Boltenia ovifera

Molgula sp.

Synoicum sp.

Trididemnum strangula

Colonial tunicates of family

Synoiidae

Station: G-13
 Range of depth: 34-36 fathoms
 Bottom type: Unknown
 Range of temp.: 2.6° to 4.6° C.

Porifera

Coelenterata

Hydroids

Annelida

Polychaeta (scale worms)

Arthropoda

Crustacea

Cirripedia

Balanus balanus balanus

Decapoda

Pandalus goniurus

Crangon dalli

Pagurus alaskensis

Paralithodes camtschatica

* Dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: G-13 (Cont.)

Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca

Pelecypoda
Serripes grönlandicus
Spisula voyi
Hiatella striata

Gastropoda

Crepidula grandis
Neptunea lyrata

Echinodermata

Asteroidea
Pteraster obscura
 Ophiuroidea
Ophiopholis aculeata
Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidacea
Boltenia ovifera

Station: G-14
 Depth: 31 fathoms
 Bottom type: unknown
 Range of temp.: 2.5° to 5.5° C.

Porifera

Coelenterata

Hydroids
 Anemones
 Alcyonacea
Gersemia rubriformis

Annelida

Polychaeta (scale and tube worms)

Arthropoda

Crustacea
 Amphipoda
 Cirripedia
Balanus balanus balanus
 Decapoda
Pandalus goniurus
Lebbeus groenlandicus
Crangon dalli
Pagurus alaskensis
Pagurus sp.

Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca

Pelecypoda
Modiolus modiolus
Spisula voyi
Hiatella sp.

Gastropoda

Neptunea lyrata

Echinodermata

Asteroidea
Asterias amurensis
Evasterias troschelii ?

Ophiuroidea

Gorgonocephalus caryi

Echinoidea

Strongylocentrotus drobachiensis ?

Holothuroidea

Cucumbers

Chordata

Ascidacea
Boltenia ovifera
Molgula sp.
Synoicum sp.

Station: G-15
 Depth: 19 fathoms
 Bottom type: unknown
 Temp.: 2.8° C.

Coelenterata

Hydroids

Arthropoda

Crustacea

Cirripedia

Balanus hesperius

Decapoda

Pagurus alaskensis
Paralithodes camtschatica
Chionoecetes sp.

Mollusca

Pelecypoda
Spisula voyi
Mya japonica
Hiatella arctica

Invertebrate catch by stations (Continued)

Station: G-15 (Cont.)

Gastropoda

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Evasterias troschelii ?

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiacea

Boltenia ovifera

Molgula retortiformis

Station: H-7

Depth: 35 fathoms

Bottom type: Unknown

Temp.: 2.5° C.

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale worms)

Bryozoa

Arthropoda

Crustacea

Decapoda

Pandalus goniurus

Crangon dalli

Argis dentata

Pagurus brandti

Pagurus splendescens

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Clinocardium ciliatum

Serripes grönlandicus

Gastropoda

Trichotropis sp. (possibly)

Boreotrophon clathratus

Buccinum polare

Beringius stimpsoni

Neptunea lyrata

Volutopsius fragilis

Echinodermata

Asteroidea

Henricia sanguinolenta ?

Pteraster obscura

Asterias amurensis

Evasterias troschelii ?

Ophiuroidea

Brittle stars

Station:

H-8

Depth:

28 fathoms

Bottom type:

Unknown

Range of temp.:

3.2° to 3.9° C.

Porifera

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale and tube worms)

Bryozoa

Arthropoda

Crustacea

Isopoda

Cirripedia

Balanus balanus balanus

Decapoda

Crangon dalli

Pagurus brandti

Pagurus sp.

Pagurus splendescens

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Yoldia scissurata

Serripes grönlandicus

Macoma calcarea

Spisula voyi

Gastropoda

Crepidula grandis

Trichotropis sp. (possibly)

Polinices pallidus

Neptunea lyrata

Echinodermata

Asteroidea

Henricia sanguinolenta ?

Invertebrate catch by stations (Continued)

Station: H-8 (Cont.)

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiacea

Styela coriacea

Styela rustica macreteron

Boltenia ovifera

Aplidium sp.

Station: H-9

Depth: 26 fathoms

Bottom type: Unknown

Range of temp.: 3.2° to 4.0° C.

Porifera

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale worms)

Arthropoda

Crustacea

Isopoda

Cirripedia

Balanus balanus balanus

Balanus hesperius

Decapoda

Crangon dalli

Pagurus alaskensis

Pagurus sp.

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Musculus discors laevigatus

forma substriata

Serripes grönlandicus

Gastropoda

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Evasterias troschelii ?

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiacea

Styela rustica macreteron

Colonial tunicates of family

Synoicidae

Station: H-10

Range of depth: 27-28 fathoms

Bottom type: fine sandy mud

Range of temp.: -0.7° to +5.3° C.

Arthropoda

Crustacea

Decapoda

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Nucula bellotii

Serripes grönlandicus

Macoma calcarea

Gastropoda

Polinices pallidus

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Chordata

Ascidiacea

Boltenia ovifera

Colonial tunicates of family

Synoicidae

Station: H-11 *

Range of depth: 29-30 fathoms

Bottom type: fine sandy mud

Range of temp.: -0.1° to +4.2° C.

Foraminifera

Porifera

Coelenterata

Hydroids

Alcyonacea

* Both dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: H-11 * (Cont.)

Gersemia rubriformis

Annelida

Polychaeta (tube and scale worms)

Bryozoa

Arthropoda

Crustacea

Amphipoda

Isopoda

Cirripedia

Balanus balanus balanus

Balanus crenatus

Balanus hesperius

Balanus rostratus apertus

Rhizocephalans

Decapoda

Crangon dalli

Pagurus alaskensis

Pagurus brandti

Pagurus spendescens

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Nucula bellotii

Nuculana radiata

Yoldia scissurata

Mytilus edulis

Modiolus modiolus

Thracia beringi

Thracia myopsis ?

Lyonsia sp.

Cardita crebricostata

Diplodonta orbella

Pseudopythina compressa

Serripes grönlandicus

Tellina lutea

Macoma calcarea

Macoma incongrua

Macoma moesta

Spisula voyi

Mya pseudoarenaria

Hiatella arctica

Gastropoda

Margaritopsis grosvenori

Solariella obscura

Tachyrhynchus erosum

Crepidula grandis

Natica clausa

Polinices nanus

Polinices sp.

Velutina plicatilis cryptospira

Neptunea beringiana varicifera

Neptunes heros

Neptunea lyrata

Volutopsius fragilis

Oenopota kyskana ?

Oenopota (Propebela) rugulata

Oenopota solida

? *Oenopota tenuissima*

Oenopota (Turritomella) sp.

Oenopota sp. ?

Propebela excurvata

Nemotoma hokkaidoensis ?

Opisthobranchiata

Cylichna nucleola

Echuroidea

Echiurus sp.

Echinodermata

Astroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidiacea

Dendrodoa pulchella

Styela rustica macreteron

Boltenia ovifera

Colonial tunicates of family

Synoiidae

Station:

H-12

Range of depth:

32-34 fathoms

Bottom type:

Unknown

Range of temp.:

3.2° to 4.0° C.

Coelenterata

Hydroids

Annelida

Polychaeta (tube worms)

Bryozoa

* Both dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: H-12 (Cont.)

Arthropoda

Crustacea

Amphipoda

Cirripedia

Balanus balanus balanus

Decapoda

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Pododesmus macroschisma

Modiolus modiolus

Gastropoda

Crepidula grandis

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Echinoidea

Strongylocentrotus drobachiensis

Holothuroidea

Cucumbers

Chordata

Ascidiacea

Styela rustica macreteron

Boltenia ovifera

Crangon dalli

Pagurus alaskensis

Pagurus brandti

Pagurus sp.

Paralithodes camtschatica

Oregonia gracilis

Chionoecetes sp.

Hyas coarctatus alutaceus

Hyas lyratus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Spisula voyi

Gastropoda

Crepidula grandis

Cerithiopsis stejneri

Beringius stimpsoni

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Holothuroidea

Cucumbers

Chordata

Ascidiacea

Styela rustica macreteron

Boltenia ovifera

Molgula sp.

Station: H-13
Depth: 32 fathoms
Bottom type: Unknown
Range of temp.: 2.4° to 5.5° C.

Porifera

Coelenterata

Hydroids

Annelida

Polychaeta (scale worms)

Bryozoa

Arthropoda

Crustacea

Cirripedia

Balanus balanus balanus

Balanus hesperius

Decapoda

Station: H-14
Depth: 31 fathoms
Bottom type: Unknown
Range of temp.: 2.7° to 6.2° C.

Porifera

Coelenterata

Hydroids

Anemones

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale worms)

Bryozoa

Mesenteripora meandrina

Arthropoda

Crustacea

Amphipoda

Invertebrate catch by stations (Continued)

Station: H-14 (Cont.)

Cirripedia
Balanus balanus balanus
Balanus hesperius
Decapoda
Pandalus borealis eous
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Pagurus sp.
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Spisula voyi
Hiatella striata
Gastropoda
Crepidula grandis
Liomesus canaliculatus
Neptunea heros
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis ?
Sand dollars
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Styela coriacea
Styela rustica macreteron
Boltenia ovifera
Molgula sp.
Colonial tunicates of family
Synoicidae

Station: H-15
Depth: 29 fathoms
Bottom type: Unknown
Temp.: 2.8° C.

Coelenterata
Hydroids
Annelida
Polychaeta (tube worms)
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus goniurus
Crangon dalli
Sclerocrangon boreas
Pagurus alaskensis
Paralithodes camtschatica
Oregonia gracilis
Hyas lyratus

Mollusca
Pelecypoda
Spisula voyi
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Dendrodoa pulchella
Styela coriacea
Styela rustica macreteron
Boltenia ovifera
Aplidium sp.
Synoicum sp.
Trididemnum strangulatum

Station: I-8
Depth: 24 fathoms
Bottom type: Unknown
Temp.: 2.6° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis

Invertebrate catch by stations (Continued)

Station: I-8 (Cont.)

Bryozoa

Arthropoda

Crustacea

Cirripedia

Balanus balanus balanus

Balanus hesperius

Balanus rostratus apertus

Decapoda

Pandalus goniurus

Crangon dalli

Pagurus sp.

Pagurus splendescens

Paralithodes camtschatica

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Serripes grönlandicus

Tellina lutea

Gastropoda

Velutina plicatilis cryptospira

Echinodermata

Asteroidea

Asterias amurensis

Chordata

Ascidiacea

Styela coriacea

Styela rustica macreteron

Synoicum sp.

Station: I-9

Range of depth: 23-24 fathoms

Bottom type: Unknown

Range of temp.: 3.1° to 4.5° C.

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Bryozoa

Arthropoda

Crustacea

Decapoda

Crangon dalli

Pagurus splendescens

Paralithodes camtschatica

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Gastropoda

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Chordata

Ascidiacea

Styela rustica macreteron

Station: I-10

Depth: 25 fathoms

Bottom type: Unknown

Range of temp.: 3.3° to 4.6° C.

Coelenterata

Alcyonacea

Gersemia rubriformis

Arthropoda

Crustacea

Cirripedia

Balanus hesperius

Decapoda

Crangon dalli

Pagurus splendescens

Paralithodes camtschatica

Chionoecetes sp.

Erimacrus isenbeckii

Mollusca

Pelecypoda

Serripes grönlandicus

Spisula voyi

Gastropoda

Neptunea lyrata

Echinodermata

Asteroidea

Asterias amurensis

Chordata

Ascidiacea

Colonial tunicates of family

Synoicidae

Station: I-11

Range of depth: 28-29 fathoms

Bottom type: Unknown

Range of temp.: 2.4° to 4.4° C.

Invertebrate catch by stations (Continued)

Station: I-11 (Cont.)

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (scale worms)

Arthropoda

Crustacea

Cirripedia

Balanus balanus balanus

Balanus hesperius

Decapoda

Pandalus borealis eous

Crangon dalli

Pagurus brandti

Pagurus sp.

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Serripes grönlandicus

Spisula voyi

Gastropoda

Tachyrhynchus or *Ptychatractus* sp.

Thais lima

Echinodermata

Astroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Balanus hesperius

Decapoda

Pandalus borealis eous

Crangon dalli

Pagurus alaskensis

Pagurus kennerlyi

Pagurus splendescens

Paralithodes camtschatica

Chionoecetes sp.

Hyas coarctatus alutaceus

Erimacrus isenbeckii

Mollusca

Pelecypoda

Spisula voyi

Gastropoda

Neptunea lyrata

Echinodermata

Astroidea

Asterias amurensis

Ophiuroidea

Gorgonocephalus caryi

Holothruoidea

Cucumbers

Chordata

Ascidiacea

Boltenia ovifera

Colonial tunicates of family

Syncoicidae

Station: I-12

Range of depth: 29-33 fathoms

Bottom type: Unknown

Range of temp.: 2.3° to 4.9° C.

Porifera

Coelenterata

Hydroids

Anemones

Annelida

Polychaeta (scale worms)

Arthropoda

Crustacea

Isopoda

Cirripedia

Porifera

Coelenterata

Hydroids

Alcyonacea

Gersemia rubriformis

Annelida

Polychaeta (tube worms)

Bryozoa

Arthropoda

Crustacea

Cirripedia

Balanus rostratus apertus

Decapoda

Pandalus borealis eous

Pagurus alaskensis

Station:

I-13

Range of depth:

20-21 fathoms

Bottom type:

Unknown

Range of temp.:

1.9° to 5.6° C.

Invertebrate catch by stations (Continued)

Station: I-13 (Cont.)

Paralithodes camtschatica
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Spisula voyi
Gastropoda
Neptunea heros
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Holothuroidea
Cucumbers
Chordata
Ascidacea
Styela rustica macrenteron
Boltenia ovifera
Colonial tunicates of family
Synoicidae

Station: I-14
Depth: 26 fathoms
Bottom type: Unknown
Temp.: 2.1° C.

Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus goniurus
Crangon dalli
Crangon sp.
Pagurus alaskensis
Paralithodes camtschatica
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Cardita crebricostata
Spisula voyi
Echinodermata
Asteroidea
Asterias amurensis
Chordata
Ascidacea

Boltenia ovifera
Molgula sp.

Station: J-10
Depth: 21 fathoms
Bottom type: Unknown
Temp.: 5.6° C.

Arthropoda
Crustacea
Decapoda
Pagurus alaskensis
Paralithodes camtschatica
Hyas coarctatus alutaceus
Mollusca
Pelecypoda
Tellina lutea
Gastropoda
Buccinum polare
Echinodermata
Asteroidea
Asterias amurensis

Station: J-11
Range of depth: 25-30 fathoms
Bottom type: Unknown
Range of temp.: 1.7° to 5.5° C.

Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale worms)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus balan
Balanus rostratus apertus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.

Invertebrate catch by stations (Continued)

Station: J-11 (Cont.)

Hyas lyratus
Telmessus cheiragonus

Mollusca

Pelecypoda
Spisula voyi
Hiatella striata

Gastropoda
Neptunea heros
Neptunea lyrata

Echinodermata

Astroidea
Asterias amurensis

Ophiuroidea
Gorgonocephalus caryi

Holothuroidea
Cucumbers
Psolus sp.

Chordata

Ascidiacea
Styela rustica macrenteron
Boltenia ovifera
Molgula sp.
Colonial tunicates of family
Synoicidae

Station: J-12
Depth: 23 fathoms
Bottom type: Unknown
Range of temp.: 1.5° to 5.6° C.

Arthropoda

Crustacea
Decapoda
Crangon dalli
Paralithodes camtschatica
Erimacrus isenbeckii

Mollusca

Pelecypoda
Spisula voyi
Gastropoda
Pyrulofusus deformis

Echinodermata

Astroidea
Asterias amurensis
Holothuroidea
Cucumbers

Station: J-13
Range of depth: 26-27 fathoms
Bottom type: Unknown
Range of temp.: 1.4° to 5.5° C.

Porifera

Coelenterata
Hydroids
Alcyonacea
Gersemia rubrifomis

Arthropoda

Crustacea
Cirripedia
Balanus balanus balanus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Paralithodes camtschatica
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca

Pelecypoda
Serripes grönlandicus
Tellina lutea
Spisula voyi
Gastropoda
Neptunea lyrata

Echinodermata

Astroidea
Asterias amurensis
Holothuroidea
Cucumbers

Chordata

Ascidiacea
Boltenia ovifera
Synoicum sp.

Station: K-11
Depth: 21 fathoms
Bottom type: Unknown
Temp.: 1.3° C.

Coelenterata

Anemones

Arthropoda

Invertebrate catch by stations (Continued)

Station: K-11 (Cont.)

Crustacea
 Cirripedia
Balanus hesperius
 Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Hyas lyratus
 Mollusca
 Pelecypoda
Hiatella striata
 Gastropoda
Neptunea lyrata
 Echinodermata
 Asteroidea
Asterias amurensis
 Holothuroidea
 Cucumbers
 Chordata
 Ascidiacea
Boltenia ovifera

Station: K-12
 Depth: 13 fathoms
 Bottom type: Unknown
 Temp.: 8.2° C.

Anthropoda
 Crustacea
 Decapoda
Telmessus cheiragonus
 Echinodermata
 Asteroidea

Station: Z-5 *
 Range of depth: 46-60 fathoms
 Bottom type: dark sand
 Range of temp.: 2.4° to 5.4° C.

Porifera
 Coelenterata
 Anemones
 Hydroids
 Alcyonacea
Gersemia rubriformis

Annelida
 Arthropoda
 Crustacea
 Isopoda
 Cirripedia
Balanus balanoides
Balanus crenatus
Balanus evermanni
Balanus hesperius
Balanus rostratus apertus
 Rhizocephalans
 Decapoda
Pandalus borealis eous
Crangon dalli
Pagurus aleuticus
Pagurus cavimanus
Pagurus confragosus
Pagurus sp.
Pagurus sp.
Pagurus tenuimanus
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Cancer oregonensis (juvenile)

Mollusca
 Pelecypoda
Chlamys rubidus
Pododesmus macroschisma
Musculus discors laevigatus
forma substriata
Modiolus modiolus
Cardita crebricostata
Serripes grönlandicus
Psephidia ovalis
Macoma incongrua
 Gastropoda
Epitonium greenlandicum
Crepidula grandis
Natica clausa
Fusitriton oregonensis
Buccinum tenue
Pyrulofusus deformis
Mohnia sp. (perhaps *M. robusta*
 or *M. frielei*)
Neptunea lyrata

* Both dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: Z-5 * (Cont.)

Plicifusus kroyeri

Volutopsius melonis

Oenopota (Turritomella) sp.

Echinodermata

Asteroidea

Pseudarchaster parelii?

Cermaster patagonicus ?

Asterias amurensis

Leptasterias polaris ?

Echinoidea

Sand dollars

Chordata

Ascidiacea

Halocynthia aurantium

* Both dredge and otter trawl used.

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